TITLE 327 WATER POLLUTION CONTROL DIVISION

Proposed Rule
LSA Document #17-278

DIGEST

Amends 327 IAC 1-1-1, 327 IAC 1-1-2, 327 IAC 2-1-8, 327 IAC 2-1.3-2, 327 IAC 2-1.5-2, 327 IAC 2-1.5-10, 327 IAC 2-1.5-13, 327 IAC 2-1.5-14, 327 IAC 2-1.5-15, 327 IAC 2-3-1, 327 IAC 2-4-3, 327 IAC 2-10-3, 327 IAC 2-11-3, 327 IAC 3-2.1-3, 327 IAC 3-6-8, 327 IAC 3-6-9, 327 IAC 3-6-10, 327 IAC 3-6-13, 327 IAC 3-6-16, 327 IAC 3-6-18, 327 IAC 3-6-19, 327 IAC 3-6-24, 327 IAC 5-1-1, 327 IAC 5-2-1.5, 327 IAC 5-2-1.6, 327 IAC 5-2-10, 327 IAC 5-17-3, 327 IAC 5-17-12, 327 IAC 5-17-21, 327 IAC 5-17-23, 327 IAC 5-19-6, 327 IAC 5-20-1, 327 IAC 5-20-2, 327 IAC 5-21-6, 327 IAC 5-21-7, 327 IAC 8-3.1-2, 327 IAC 17-1-3, and 327 IAC 19-2-7, concerning updates to certain sections of Title 327. Repeals 327 IAC 1-1-4, 327 IAC 2-1-12, 327 IAC 2-1.5-20, 327 IAC 3-2.1-2, 327 IAC 3-6-2, 327 IAC 5-1.5-1, and 327 IAC 12.1-2-3. Effective 30 days after filing with the Publisher.

HISTORY

Findings and Determination of the Commissioner Pursuant to IC 13-14-9-7 and Second Notice of Comment Period: June 28, 2017, Indiana Register (DIN: 20170628-IR-327170278FDA).

Notice of First Hearing: June 28, 2017, Indiana Register (DIN: 20170628-IR-327170278PHA).

Date of First Hearing: October 11, 2017.

PUBLIC COMMENTS UNDER IC 13-14-9-4.5

IC 13-14-9-4.5 states that a board may not adopt a rule under IC 13-14-9 that is substantively different from the draft rule published under IC 13-14-9-4, until the board has conducted a third comment period that is at least 21 days long. Because this proposed rule is not substantively different from the draft rule published on June 28, 2017, at DIN: 20170628-IR-327170278FDA, the Indiana Department of Environmental Management (IDEM) is not requesting additional comment on this proposed rule.

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

IDEM requested public comment from June 28, 2017, through July 28, 2017, on IDEM's draft rule language. No comments were received during the second comment period.

SUMMARY/RESPONSE TO COMMENTS RECEIVED AT THE FIRST PUBLIC HEARING

On October 11, 2017, the Environmental Rules Board (board) conducted the first public hearing/board meeting concerning the development of amendments to 327 IAC 1-1-2, to update references and text in the CFR, and to make administrative changes to bring it up to date with the July 1, 2017, edition. No comments were made at the first hearing.

327 IAC 1-1-1; 327 IAC 1-1-2; 327 IAC 1-1-4; 327 IAC 2-1-8; 327 IAC 2-1-12; 327 IAC 2-1.3-2; 327 IAC 2-1.5-2; 327 IAC 2-1.5-10; 327 IAC 2-1.5-13; 327 IAC 2-1.5-14; 327 IAC 2-1.5-15; 327 IAC 2-1.5-20; 327 IAC 2-3-1; 327 IAC 2-4-3; 327 IAC 2-10-3; 327 IAC 2-11-3; 327 IAC 3-2.1-2; 327 IAC 3-2.1-3; 327 IAC 3-6-2; 327 IAC 3-6-8; 327 IAC 3-6-9; 327 IAC 3-6-10; 327 IAC 3-6-13; 327 IAC 3-6-16; 327 IAC 3-6-18; 327 IAC 3-6-19; 327 IAC 3-6-24; 327 IAC 5-1-1; 327 IAC 5-1.5-1; 327 IAC 5-2-1.5; 327 IAC 5-2-1.6; 327 IAC 5-2-10; 327 IAC 5-17-3; 327 IAC 5-17-12; 327 IAC 5-17-21; 327 IAC 5-17-23; 327 IAC 5-19-6; 327 IAC 5-20-1; 327 IAC 5-20-2; 327 IAC 5-21-6; 327 IAC 5-21-7; 327 IAC 8-3.1-2; 327 IAC 12.1-2-3; 327 IAC 17-1-3; 327 IAC 19-2-7

SECTION 1. 327 IAC 1-1-1 IS AMENDED TO READ AS FOLLOWS:

327 IAC 1-1-1 References to federal Act

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3-2
Affected: IC 13-14-8

Sec. 1. ~~Unless otherwise indicated,~~ References in this title to the ~~Federal Water Pollution Control Act or to the~~ Clean Water Act (CWA) ~~shall~~ mean the federal Water Pollution Control Act. ~~in effect July 1, 2004.~~

(Water Pollution Control Division; 327 IAC 1-1-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 579; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2046; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 2. 327 IAC 1-1-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 1-1-2 References to the Code of Federal Regulations

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3-2
Affected: IC 13-14-8

Sec. 2. Unless otherwise indicated, any reference to a provision of the Code of Federal Regulations (CFR) ~~shall mean~~ **means** the July 1, ~~2004, revision.~~ **2016, edition.**

(Water Pollution Control Division; 327 IAC 1-1-2; filed Sep 24, 1987, 3:00 p.m.: 11 IR 579; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2046; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 3. 327 IAC 2-1-8 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1-8 Methods of analysis

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 8. The analytical procedures used as methods of analysis to determine the chemical, bacteriological, biological, and radiological quality of waters sampled ~~shall~~ **must** be **completed** in accordance with 40 CFR 136* or methods approved by the commissioner.

***This document is incorporated by reference. Copies may be obtained from the Government Publishing Office, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-1-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 583; filed Feb 1, 1990, 4:30 p.m.: 13 IR 1033; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2055)

SECTION 4. 327 IAC 2-1.3-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.3-2 Definitions

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-8; IC 13-18-3-2; IC 14-8-2-310; IC 14-22-34; IC 36-2-3.5; IC 36-3-1

Sec. 2. The following definitions apply throughout 327 IAC 2-1, this rule, and 327 IAC 2-1.5:

(1) "Approved alternate mixing zone volume for Lake Michigan" means the volume associated with an alternate mixing zone for Lake Michigan established according to 327 IAC 5-2-11.4(b)(6) and 327 IAC 5-2-11.4(b)(7).

(2) "Available loading capacity" is expressed as a regulated pollutant mass loading rate, per twenty-four (24) hour period, for the waterbody in that area where the water quality is proposed to be lowered, and means the difference between the total loading capacity and the used loading capacity.

(3) "Best available demonstrated control technology" or "BADCT" means wastewater treatment capable of meeting the technology-based effluent limit (TBEL) ~~established by the department~~ under 327 IAC 5-5-2 that represents the best cost-effective treatment technology that is readily available.

(4) "Best management practices" or "BMPs" means the following measures to prevent or reduce the pollution of surface waters of the state:

(A) Schedules of activities.
(B) Prohibitions of practice.
(C) Treatment requirements.
(D) Operation and maintenance procedures.
(E) Use of containment facilities.
(F) Other management practices.

BMPs may be employed ~~for example,~~ to control **events such as** plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage resulting from manufacturing, commercial, mining, or

silvicultural activities.
(5) "Bioaccumulation" means the net accumulation of a substance by an organism as a result of uptake from all environmental sources.
(6) "Bioaccumulation factor" or "BAF" means the ratio in liters per kilogram of ~~a substance's~~ **the** concentration **of a substance** in **the** tissue of an aquatic organism to its concentration in the ambient water in situations where:
(A) both the organism and its food are exposed; and
(B) the ratio does not change substantially over time.
(7) "Bioaccumulative chemical of concern" or "BCC" has the meaning set forth in 327 IAC 2-1-9 and 327 IAC 2-1.5-6.
(8) "Board" means the ~~water pollution control~~ board established under ~~IC 13-18-1~~. **IC 13-13-8.**
(9) "CERCLA" has the meaning set forth at IC 13-11-2-24.
(10) "Clean Water Act" or "CWA" has the meaning set forth at IC 13-11-2-29.
(11) "Combined sewer" means a sewer designed and employed to receive both of the following:
(A) Water-carried or liquid wastes.
(B) Storm or surface water.
(12) "Commissioner" has the meaning set forth at IC 13-11-2-35.
(13) "Criterion" means a definite numerical value or narrative statement promulgated by the board, to maintain or enhance water quality to provide for and fully protect designated uses of the surface waters of the state.
(14) "Degradation" means, for purposes of an antidegradation demonstration, the following:
(A) For an ONRW, any new or increased loading of a regulated pollutant, except for a short-term, temporary increase as described under section 4(a) of this rule.
(B) For an HQW, including an OSRW, but excluding an ONRW, any new or increased loading of a regulated pollutant, except as provided under section 4 of this rule, to a surface water of the state, that results in a significant lowering of water quality for that regulated pollutant.
(15) "Department" has the meaning set forth at IC 13-11-2-51.
(16) "Designated uses" means those uses specified in the water quality standards at:
(A) 327 IAC 2-1-3; and
(B) 327 IAC 2-1.5-5;
for each waterbody, whether or not they are being attained.
(17) "Draft permit" means a document prepared by the commissioner under 327 IAC 5-3-6 before the public comment period, indicating the commissioner's tentative decision to:
(A) issue or deny;
(B) modify;
(C) revoke and reissue;
(D) terminate; or
(E) reissue;
a permit.
(18) "Effluent" means a wastewater discharge from a point source to the surface waters of the state.
(19) "Effluent limitation" means any restriction established by the commissioner on:
(A) quantities;
(B) discharge rates; and
(C) concentrations;
of pollutants that are discharged, or will be discharged, from point sources into surface waters of the state.
(20) "Endangered or threatened species" means the following:
(A) Species and designated critical habitat listed as endangered or threatened under 50 CFR 17.11* and 50 CFR 17.12*. ~~as in effect on October 1, 2010.~~
(B) Species listed as state endangered by the Indiana department of natural resources under the following:
(i) 312 IAC 9-3-19.
(ii) 312 IAC 9-4-14.
(iii) 312 IAC 9-5-4.
(iv) 312 IAC 9-6-9.
(v) 312 IAC 9-9-4.
(C) State endangered or threatened species identified in the Natural Resources Commission Information Bulletin #2 as approved by the Indiana Natural Resources Commission.**
(21) "Existing uses" means those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included under 327 IAC 2-1-3 or 327 IAC 2-1.5-5.
(22) "Governmental entity" has the meaning set forth at IC 13-11-2-90.
(23) "Great Lakes" means ~~in Indiana,~~ the following **in Indiana:**
(A) Lake Erie.
(B) Lake Michigan.

(24) "High quality water" or "HQW" means a waterbody, including an ONRW or OSRW, ~~in which, on a pollutant by pollutant basis,~~ **where** the quality of the surface water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, **on a pollutant by pollutant basis.** The term includes any waterbody for which the pollutant has not been detected in:

(A) the water column; and

(B) nontransient aquatic organisms;

at levels that would indicate that a water quality criterion is not being met.

(25) "Indirect discharger" means a discharger introducing nondomestic waste pollutants into a POTW.

(26) "Lake Michigan" means the Indiana portion of the open waters of Lake Michigan.

(27) "Legislative body" means any of the following:

(A) For a county not subject to IC 36-2-3.5 or IC 36-3-1, a board of county commissioners.

(B) For a county subject to IC 36-2-3.5, a county council.

(C) For a consolidated city or a county having a consolidated city, a city council.

(D) For a city other than a consolidated city, a common council.

(E) For a town, a town council.

(F) For a township, a township board.

(28) "Mixing zone" means an area contiguous to a discharge, where the discharge mixes with the receiving water or waters. Where the quality of the effluent is lower than that of the receiving water, it may not be possible to attain **all designated uses** within the mixing zone ~~all designated uses~~ **that are** attained outside the zone. The mixing zone should not be considered a place where effluents are treated.

(29) "National Pollutant Discharge Elimination System" or "NPDES" means the national program for:

(A) issuing;

(B) modifying;

(C) revoking and reissuing;

(D) terminating;

(E) denying;

(F) monitoring; and

(G) enforcing;

permits for the discharge of pollutants from point sources, and imposing and enforcing pretreatment requirements by ~~the~~ U.S. EPA or an authorized state under Sections 307, 318, 402, and 405 of the CWA. The term includes a state program approved by ~~the~~ U.S. EPA under 40 CFR 123.

(30) "Open waters of Lake Michigan" means the following:

(A) The ~~surface~~ waters within Lake Michigan lakeward, from a line drawn across the mouth of tributaries to the lake, including all surface waters enclosed by constructed breakwaters.

(B) For the Indiana Harbor Ship Canal, the boundary of the open waters of Lake Michigan is delineated by a line drawn across the mouth of the harbor from the East Breakwater Light ~~(1995~~ **(2016** United States Coast Guard Light List No. 19675) to the northernmost point of the shore line along the west side of the harbor.

(31) "Outstanding national resource water" or "ONRW" has the meaning set forth at IC 13-11-2-149.5.

(32) "Outstanding state resource water" or "OSRW" has the meaning set forth at IC 13-11-2-149.6.

(33) "Parameter" means a quantitative or characteristic element that describes:

(A) physical;

(B) chemical; or

(C) biological;

conditions of water.

(34) "Permit" has the meaning set forth at IC 13-11-2-157.

(35) "Permittee" means the holder of a permit.

(36) "Person" has the meaning set forth at IC 13-11-2-158(a).

(37) "Point source" means any discernible, confined, and discrete conveyance, including ~~but not limited to,~~ any of the following from which pollutants are, or may be, discharged:

(A) A pipe.

(B) A ditch.

(C) A channel.

(D) A tunnel.

(E) A conduit.

(F) A well.

(G) A discrete fissure.

(H) A container.

(I) Rolling stock.

(J) A concentrated animal feeding operation.

(K) A landfill leachate collection system.

(L) A vessel.

(M) Any other floating craft.

The term does not include return flows from irrigated agriculture or agricultural storm runoff. ~~See 327 IAC 5-2-4 for other exclusions.~~

(38) "Pollutant" means any of the following when discharged into water:

(A) Dredged spoil.
(B) Solid waste.
(C) Incinerator residue.
(D) Filter backwash.
(E) Sewage.
(F) Garbage.
(G) Sewage sludge.
(H) Munitions.
(I) Chemical wastes.
(J) Biological materials.
(K) Radioactive materials.
(L) Heat.
(M) Wrecked or discarded equipment.
(N) Rock.
(O) Sand.
(P) Cellar dirt.
(Q) Industrial, municipal, or agricultural waste.

(39) "Pollution prevention" has the meaning set forth at IC 13-11-2-166.

(40) "Privately owned treatment works" means any device or system:

(A) including recycling and reclamation, used in the treatment of:
(i) municipal sewage; or
(ii) industrial wastes; and
(B) that is not a POTW.

(41) "Publicly owned treatment works" or "POTW" has the meaning set forth at ~~IC 13-11-2-177.5~~. **327 IAC 5-1.5-48.**

(42) "RCRA" means the Resource Conservation and Recovery Act, 42 U.S.C. 6901 through 42 U.S.C. 6992k. ~~as effective December 2010.~~

(43) "Regulated pollutant" means any:

(A) parameter of a pollutant as defined in subdivision (38):
(i) for which water quality criteria have been adopted in or developed pursuant to 327 IAC 2-1 or 327 IAC 2-1.5;
(ii) including:
(AA) narrative and numeric criteria; and
(BB) nutrients, specifically phosphorus and nitrogen; and
(iii) excluding:
(AA) biological criteria;
(BB) pH; and
(CC) dissolved oxygen; and
(B) other parameter of a pollutant as defined in subdivision (38) that may be limited in an NPDES permit as a result of: ~~but not limited to:~~
(i) best professional judgment;
(ii) new source performance standards;
(iii) best conventional pollutant control technology;
(iv) best available technology economically achievable; or
(v) best practicable control technology currently available;
for the appropriate categorical guidelines of 40 CFR 400 to 40 CFR 471.

(44) "Representative background concentration" means a value based upon a data set and determined according to 327 IAC 5-2-11.4(a)(8).

(45) "Representative background loading rate" means the product of the representative background concentration multiplied by either the:

(A) approved alternate mixing zone volume for Lake Michigan; or
(B) stream design flow.

(46) "Sanitary sewer" means a sewer to which storm, surface, and ground waters are not intentionally allowed to enter, **and** that conveys liquid and water-carried wastes from the following:

(A) Residences.
(B) Commercial buildings.
(C) Industrial plants.

(D) Institutions.

(47) "Sanitary wastewater" means the liquid and water-carried waste from:

(A) residences;

(B) commercial buildings;

(C) industrial plants;

(D) institutions; and

(E) other places of human occupancy;

that is transported by sewers and is primarily composed of human and household waste. Sanitary wastewater, as received by a POTW, may contain a component of industrial waste.

(48) "Sewage" has the meaning set forth at IC 13-11-2-200.

(49) "Sewer" means a pipe or conduit that carries wastewater or drainage water.

(50) "Significant lowering of water quality" means:

(A) there is a new or increased loading of a regulated pollutant to a surface water of the state, that results in an increase in the ambient concentration of the regulated pollutant, and the increased loading is greater than a de minimis lowering of water quality; and

(B) none of the provisions of section 4 of this rule applies.

(51) "Stream design flow" means the stream flow that represents critical conditions, upstream from the source as defined in 327 IAC 5-2-11.1(b) and 327 IAC 5-2-11.4(b)(3), for protection of:

(A) aquatic life;

(B) human health; or

(C) wildlife.

(52) "Total loading capacity" is expressed as a regulated pollutant mass loading rate per twenty-four (24) hour period for the waterbody in the area where the water quality is proposed to be lowered, and means the product of the applicable water quality criterion multiplied by the sum of:

(A) the existing effluent flow;

(B) the proposed new or increased effluent flow; and

(C) either:

(i) the approved alternate mixing zone volume for Lake Michigan; or

(ii) the stream design flow.

(53) "Toxic substances" means substances that are, or may become, harmful to:

(A) aquatic life;

(B) humans;

(C) other animals;

(D) plants; or

(E) food chains;

when present in sufficient concentrations or combinations. The term includes those substances identified as toxic under Section 307(a)(1) of the CWA.

(54) "Unit of government" means a:

(A) county;

(B) municipality;

(C) township; or

(D) state.

(55) "Used loading capacity" is expressed as a regulated pollutant mass loading rate per twenty-four (24) hour period for the waterbody in the area where the water quality is proposed to be lowered, and means the sum of:

(A) the representative background loading rate over a twenty-four (24) hour period; and

(B) the monthly average mass-based effluent limitations contained in the existing permit.

(56) "Wastewater" means liquid or water-carried wastes from industrial, municipal, agricultural, or other sources.

(57) "Water quality standard" means a state or federal law or regulation consisting of:

(A) a designated use or uses;

(B) water quality criteria; and

(C) an antidegradation policy and implementation ~~procedures.~~ **procedure.**

(58) "Waters" or "waters of the state" has the meaning set forth in IC 13-11-2-265.

(59) "Watershed" has the meaning set forth in IC 14-8-2-310.

(60) "Whole effluent toxicity" or "WET" means the aggregate toxic effect of an effluent measured directly by a toxicity test performed in accordance with the approved methodologies under 40 CFR Part 136.

~~*50 CFR 17.11 and 50 CFR 17.12~~ ***These documents** are incorporated by reference. ~~and~~ **Copies** may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental

Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, **Thirteenth Floor,** Indianapolis, Indiana ~~46206.~~ **46204.**

**The Natural Resources Commission Information Bulletin #2 can be found at www.in.gov\dnr\fishwild.

(Water Pollution Control Division; 327 IAC 2-1.3-2; filed May 29, 2012, 3:19 p.m.: 20120627-IR-327080764FRA; errata filed Oct 17, 2012, 3:30 p.m.: 20121107-IR-327120574ACA)

SECTION 5. 327 IAC 2-1.5-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.5-2 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-11-2; IC 13-18-3-2; IC 13-18-4

Sec. 2. In addition to the definitions contained in IC 13-11-2 ~~and 327 IAC 1,~~ **and 327 IAC 2-1.3-2,** the following definitions apply throughout this article, 327 IAC 5, and 327 IAC 15:

~~(1) "Acceptable daily exposure" or "ADE" means an estimate of the maximum daily dose of a substance that is not expected to result in adverse noncancer effects to the general human population, including sensitive subgroups.~~

~~(2)~~ **(1)** "Acceptable endpoints" (subchronic and chronic), for the purpose of wildlife criteria derivation, means those endpoints that affect reproductive or developmental success, organismal viability or growth, or any other endpoint that is, or is directly related to, a parameter that influences population dynamics.

~~(3)~~ **(2)** "Acute-chronic ratio" or "ACR" means a standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

~~(4)~~ **(3)** "Acute toxicity" means concurrent and delayed adverse effects that result from an acute exposure and occur within any short observation period, which begins when the exposure begins, may extend beyond the exposure period, and usually does not constitute a substantial portion of the life span of the organism.

~~(5)~~ **(4)** "Acute toxic unit" or "TU_a" means $100/LC_{50}$ where the LC_{50} is expressed as a percent effluent in the test medium of an acute whole effluent toxicity (WET) test that is statistically or graphically estimated to be lethal to fifty percent (50%) of the test organisms.

~~(6)~~ **(5)** "Adverse effect" means any deleterious effect to organisms due to exposure to a substance. The term includes effects that are or may become debilitating, harmful, or toxic to the normal functions of the organism, but does not include nonharmful effects, such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

~~(7)~~ **(6)** "Alternate mixing zone" means a mixing zone granted by the commissioner under 327 IAC 5-2-11.4(b)(4) for a particular pollutant and a particular criterion or value that is larger than that specified in 327 IAC 5-2-11.4(b)(2) or 327 IAC 5-2-11.4(b)(3).

~~(8)~~ **(7)** "Baseline BAF" means the following:

(A) For organic chemicals, a BAF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism.

(B) For inorganic chemicals, a BAF that is based on the wet weight of the tissue.

~~(9)~~ **(8)** "Baseline BCF" means the following:

(A) For organic chemicals, a BCF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism.

(B) For inorganic chemicals, a BCF that is based on the wet weight of the tissue.

(9) "Benchmark dose" or "BMD" means a statistical lower confidence limit on the dose or concentration that produces a predetermined change in response rate of a benchmark response compared to background.

(10) "Benchmark response" means an adverse effect used to define a benchmark dose from which an RfD or RfC can be developed. The change in response rate over background of the benchmark response is usually in the range of five percent (5%) to ten percent (10%), which is the limit of response typically observed in well-conducted animal experiments.

~~(10)~~ **(11)** "Bioaccumulation" means the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

~~(11)~~ **(12)** "Bioaccumulation factor" or "BAF" means the ratio ~~(in L/kg)~~ **in liters per kilogram** of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water, in situations where both the organism and its food are exposed and the ratio does not change substantially over time.

~~(12)~~ **(13)** "Bioaccumulative chemical of concern" or "BCC" has the meaning set forth in section 6 of this rule.

~~(13)~~ **(14)** "Bioconcentration" means the net accumulation of a substance by an aquatic organism as a result of

uptake directly from the ambient water through gill membranes or other external body surfaces.

~~(14)~~ **(15)** "Bioconcentration factor" or "BCF" means the ratio in liters per kilogram of a substance's concentration in tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time.

~~(15)~~ **(16)** "Biota-sediment accumulation factor" or "BSAF" means the ratio in kilograms of organic carbon per kilogram of lipid of a substance's lipid-normalized concentration in tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where:

(A) the ratio does not change substantially over time;

(B) both the organism and its food are exposed; and

(C) the surface sediment is representative of average surface sediment in the vicinity of the organism.

~~(16)~~ **(17)** "Carcinogen" means a substance that causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to develop neoplasms, in animals or humans. The classification of carcinogens is discussed in section 14(b)(1) of this rule.

~~(17)~~ **(18)** "Chronic effect", for purposes of wildlife criteria derivation, means:

(A) an adverse effect that is measured by assessing an acceptable endpoint; and

(B) results from continual exposure over several generations, or at least over a significant part of the test species' projected life span or life stage.

~~(18)~~ **(19)** "Chronic toxicity" means concurrent and delayed adverse effects that occur only as a result of a chronic exposure.

~~(19)~~ **(20)** "Chronic toxic unit" or "TU_c" means 100/NOEC or 100/IC_{25}, where the NOEC and IC_{25} are expressed as a percent effluent in the test medium.

~~(20)~~ **(21)** "Clean Water Act" or "CWA" means the federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.).

~~(21)~~ **(22)** "Coliform bacteria" means all the aerobic and facultatively anaerobic, gram-negative, nonsporeforming bacilli that produce acid and gas from the fermentation of lactose.

~~(22)~~ **(23)** "Community" means a general collective term to describe the varieties of aquatic species and associated organisms living together in a waterbody.

~~(23)~~ **(24)** "Criteria conversion factors" refers to the conversion factors that are multiplied by acute and chronic aquatic criteria developed using toxicological data in the form of total recoverable metal to express the criteria in the form of dissolved metal. The conversion factor for a particular metal and criterion is the fraction of the metal corresponding to an estimate of the percent of the total recoverable metal that was dissolved in the aquatic toxicity tests that were most important in the derivation of the criterion for the metal.

~~(24)~~ **(25)** "Criterion" means a definite numerical value or narrative statement promulgated by the ~~water pollution control~~ board to maintain or enhance water quality to provide for and fully protect designated uses of the waters of the state.

~~(25)~~ **(26)** "Criterion continuous concentration" or "CCC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect.

~~(26)~~ **(27)** "Criterion maximum concentration" or "CMC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

~~(27)~~ **(28)** "Depuration" means the loss of a substance from an organism as a result of any active or passive process.

~~(28)~~ **(29)** "Designated uses" has the meaning set forth in section 5 of this rule, whether or not they are being attained.

~~(29)~~ **(30)** "EC_{50}" refers to a statistically or graphically estimated concentration that is expected to cause one (1) or more specified effects in fifty percent (50%) of a group of organisms under specified conditions.

~~(30)~~ **(31)** "Effluent" means a wastewater discharge from a point source to the waters of the state.

~~(31)~~ **(32)** "Endangered or threatened species" includes those species that are listed as endangered or threatened under Section 4 of the Endangered Species Act (ESA).

~~(32)~~ **(33)** "ESA" means the Endangered Species Act (ESA), 16 U.S.C. 1531 et seq.

~~(33)~~ **(34)** "Existing uses" includes those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included under section 5 of this rule.

~~(34)~~ **(35)** "Final acute value" or "FAV" means:

(A) a calculated estimate of the concentration of a test material ~~such~~ **so** that ninety-five percent (95%) of the genera (with which acceptable acute toxicity tests have been conducted on the material) have higher GMAVs; or

(B) the SMAV of an important or critical species, if the SMAV is lower than the calculated estimate.

~~(35)~~ **(36)** "Final chronic value" or "FCV" means:

(A) a calculated estimate of the concentration of a test material ~~such~~ **so** that ninety-five percent (95%) of the genera (with which acceptable chronic toxicity tests have been conducted on the material) have higher

GMCVs;

(B) the quotient of an FAV divided by an appropriate acute-chronic ratio; or

(C) the SMCV of an important or critical species, if the SMCV is lower than the calculated estimate or the quotient, whichever is applicable.

~~(36)~~ **(37)** "Final plant value" or "FPV" means the lowest plant value that was obtained with an important aquatic plant species in an acceptable toxicity test for which the concentrations of the test material were measured and the adverse effect was biologically important.

~~(37)~~ **(38)** "Food-chain multiplier" or "FCM" means the ratio of a BAF to an appropriate BCF.

~~(38)~~ **(39)** "Full body contact" means direct contact with the water to the point of complete submergence.

~~(39)~~ **(40)** "Genus mean acute value" or "GMAV" means the geometric mean of the SMAVs for the genus.

~~(40)~~ **(41)** "Genus mean chronic value" or "GMCV" means the geometric mean of the SMCVs for the genus.

~~(41)~~ **(42)** "Geometric mean" means the Nth root of the product of N quantities. Alternatively, the geometric mean can be calculated by adding the logarithms of the N numbers, dividing the sum by N, and taking the antilog of the quotient.

~~(42)~~ **(43)** "Great Lakes" means Lake Erie and Lake Michigan.

~~(43)~~ **(44)** "Great Lakes states" means:

(A) Illinois;

(B) Indiana;

(C) Michigan;

(D) Minnesota;

(E) New York;

(F) Ohio;

(G) Pennsylvania; and

(H) Wisconsin.

~~(44)~~ **(45)** "Great Lakes system" means all the streams, rivers, lakes, and other waters of the state within the drainage basin of the Great Lakes within Indiana.

~~(45)~~ **(46)** "Great Lakes water quality wildlife criterion" or "GLWC" means the concentration of a substance that, **if not exceeded,** is likely to ~~if not exceeded,~~ protect avian and mammalian wildlife populations inhabiting the Great Lakes basin from adverse effects resulting from the ingestion of water and aquatic prey taken from surface waters of the Great Lakes system. These criteria are based on existing toxicological studies of the substance of concern and quantitative information about the exposure of wildlife species to the substance ~~that is,~~ **through** food and water consumption rates. Since toxicological and exposure data for individual wildlife species are limited, a GLWC is derived using a methodology similar to that used to derive noncancer human health criteria. Separate avian and mammalian values are developed using taxonomic class-specific toxicity data and exposure data for five (5) representative Great Lakes basin wildlife species. The following wildlife species selected are representative of avian and mammalian species resident in the Great Lakes basin that are likely to experience the highest exposures to bioaccumulative contaminants through the aquatic food web:

(A) Bald eagle.

(B) Herring gull.

(C) Belted kingfisher.

(D) Mink.

(E) River otter.

~~(46)~~ **(47)** "Ground water" means water located below the ground surface in interconnected voids and pore spaces in the zone of saturation.

~~(47) "High quality waters" means waterbodies in which, on a parameter by parameter basis, the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water. The term includes any waterbody for which the pollutant has not been detected in:~~

~~(A) the water column; and~~

~~(B) nontransient aquatic organisms at levels that would indicate that a water quality criterion is not being met.~~

(48) "Human cancer criterion" or "HCC" refers to a ~~human cancer value~~ HCV for a pollutant that meets the minimum data requirements for Tier I specified in section 14 of this rule.

(49) "Human cancer value" or "HCV" means the maximum ambient water concentration of a substance at which a lifetime of exposure will represent a plausible upper-bound risk of contracting cancer of one (1) in one hundred thousand (100,000) using the exposure assumptions specified in section 14 of this rule from either:

(A) drinking the water, consuming fish from the water, and water-related recreational activities; or

(B) consuming fish from the water and water-related recreational activities.

(50) "Human noncancer criterion" or "HNC" refers to a ~~human noncancer value~~ HNV for a pollutant that meets the minimum data requirements for Tier I specified in section 14 of this rule.

(51) "Human noncancer value" or "HNV" means the maximum ambient water concentration of a substance at which adverse noncancer effects are not likely to occur in the human population from lifetime exposure using

section 14 of this rule from either:

(A) drinking the water, consuming fish from the water, and water-related recreational activities; or

(B) consuming fish from the water and water-related recreation activities.

(52) "Inhibition concentration 25" or "IC_{25}" means the toxicant concentration that would cause a twenty-five percent (25%) reduction in a nonquantal biological measurement for the test population. For example, the IC_{25} is the concentration of toxicant that would cause a twenty-five percent (25%) reduction in mean young per female or in growth for the test population.

(53) "LC_{50}" refers to a statistically or graphically estimated concentration that is expected to be lethal to fifty percent (50%) of a group of organisms under specified conditions.

(54) "Linearized multistage model" means a conservative mathematical model for cancer risk assessment. This model fits linear dose-response curves to low doses. It is consistent with a no-threshold model of carcinogenesis, that ~~is,~~ **means** exposure to even a very small amount of the substance is assumed to produce a finite increased risk of cancer.

(55) "Lowest observed adverse effect level" or "LOAEL" means the lowest tested dose or concentration of a substance that resulted in an observed adverse effect in exposed test organisms when all higher doses or concentrations resulted in the same or more severe effects.

(56) "Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water that is delivered to the free-flowing outlet of the ultimate user of a public water system.

(57) "Mixing zone" means an area contiguous to a discharge where the discharged wastewater mixes with the receiving water. Where the quality of the effluent is lower than that of the receiving water, it may not be possible to attain **all beneficial uses** within the mixing zone ~~all beneficial uses~~ **that are** attained outside the zone. The mixing zone should not be considered a place where effluents are treated.

(58) "New Great Lakes discharger" has the meaning set forth in 327 IAC 5-1.5-36.

(59) "Nonthreshold mechanism" means a process that results in some possible effect no matter what level is present. There is no level that may not produce an effect.

(60) "No observed adverse effect level" or "NOAEL" is the highest tested dose or concentration of a substance that resulted in no observed adverse effect in exposed test organisms where higher doses or concentrations resulted in an adverse effect.

(61) "No observed effect concentration" or "NOEC" is the highest concentration of toxicant to which organisms are exposed in a full life cycle or partial life cycle (short term) test, that causes no observable adverse effects on the test organisms. ~~that~~ **This** is the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls.

(62) "Occur at the site" includes the species, genera, families, orders, classes, and phyla that:

(A) are usually present at the site;

(B) are present at the site only seasonally due to migration;

(C) are present intermittently because they periodically return to or extend their ranges into the site;

(D) were present at the site in the past, are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve; or

(E) are present in nearby bodies of water, are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve.

The taxa that occur at the site cannot be determined merely by sampling downstream and upstream of the site at one (1) point in time. The term does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site, ~~for example,~~ **such as** alterations resulting from dams.

(63) "Octanol-water partition coefficient" or "K_{OW}" means the ratio of the concentration of a substance in the n-octanol phase to its concentration in the aqueous phase in an equilibrated two-phase octanol-water system. For log K_{OW}, the log of the octanol-water partition coefficient is a base ten (10) logarithm.

(64) "Open waters of Lake Michigan" means ~~all of~~ **the following:**

(A) The waters within Lake Michigan lakeward, from a line drawn across the mouth of tributaries to the lake, including all waters enclosed by constructed breakwaters.

(B) For the Indiana Harbor Ship Canal, the boundary of the open waters of Lake Michigan is delineated by a line drawn across the mouth of the harbor from the East Breakwater Light ~~(1995~~ **(2016** United States Coast Guard Light List No. 19675) to the northernmost point of the ~~LTV Steel property~~ **shore line** along the west side of the harbor.

(65) "Outstanding national resource water" ~~means a water designated as such by the general assembly after recommendations by the water pollution control board and the environmental quality service council under IC 13-18-3-2(o) and IC 13-18-3-2(p). The designation must describe the quality of the outstanding national resource water to serve as the benchmark of the water quality that shall be maintained and protected. Waters that may be considered for designation as outstanding national resource waters include waterbodies that are recognized as:~~ **has the meaning set forth at IC 13-11-2-149.5.**

~~(A) important because of protection through official action, such as:~~

~~(i) federal or state law;~~
~~(ii) presidential or secretarial action;~~
~~(iii) international treaty; or~~
~~(iv) interstate compact;~~
~~(B) having exceptional recreational significance;~~
~~(C) having exceptional ecological significance;~~
~~(D) having other special environmental, recreational, or ecological attributes; or~~
~~(E) waters with respect to which designation as an outstanding national resource water is reasonably necessary for protection of other waterbodies designated as outstanding national resource waters.~~

(66) "Outstanding state resource water" ~~means any water designated as such by the water pollution control board regardless of when the designation occurred or occurs. Waters that may be considered for designation as outstanding state resource waters include waterbodies that have unique or special ecological, recreational, or aesthetic significance.~~ **has the meaning set forth at IC 13-11-2-149.6.**

(67) "Point source" has the meaning set forth in 327 IAC 5-1.5-40.

(68) "Policy" means a statement of administrative practice or decision making guidelines to be followed or implemented to the maximum extent feasible with respect to an identified problematic situation, but to be less than strictly enforceable in contrast to a standard or rule of law.

(69) "Public water supply" means a source of water for a public water system.

(70) "Public water system" has the meaning set forth in 42 U.S.C. 300f.

(71) "Quantitative structure activity relationship" or "QSAR" or "structure activity relationship" or "SAR" refers to a mathematical relationship between a property (activity) of a chemical and a number of descriptors of the chemical. These descriptors are chemical or physical characteristics obtained experimentally or predicted from the structure of the chemical.

(72) "Reference concentration" or "RfC" means an estimate, with uncertainty spanning an order of magnitude, of a continuous inhalation exposure to the human population, including sensitive subgroups, that is likely to be without appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or BMD, with UFs generally applied to reflect limitations of the data used.

(73) "Reference dose" or "RfD" means an estimate, with uncertainty spanning an order of magnitude, of a daily oral exposure to the human population, including sensitive subgroups, that is likely to be without appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or BMD, with UFs generally applied to reflect limitations of the data used.

~~(72)~~ **(74)** "Relative source contribution" or "RSC" means the factor (percentage) used in calculating an HNV or HNC to account for all sources of exposure to a contaminant. The RSC reflects the percent of total exposure that may be attributed to surface water through water intake and fish consumption.

~~(73)~~ **(75)** "Risk" means the probability that a substance, when released to the environment, will cause an adverse effect in exposed humans or other living organisms.

~~(74)~~ **(76)** "Risk assessment" means the analytical process used to determine the level of risk.

~~(75)~~ **(77)** "Risk associated dose" or "RAD" refers to a dose of a known or presumed carcinogenic substance in milligrams per kilogram per day, which, over a lifetime of exposure, is estimated to be associated with a plausible upper bound incremental cancer risk equal to one (1) in one hundred thousand (100,000).

~~(76)~~ **(78)** "Secondary continuous concentration" or "SCC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The SCC differs from the CCC in that fewer data are required to calculate the SCC than the CCC.

~~(77)~~ **(79)** "Secondary maximum concentration" or "SMC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The SMC differs from the CMC in that fewer data are required to calculate the SMC than the CMC.

~~(78)~~ **(80)** "Slope factor", also known as "q_1*", means the incremental rate of cancer development calculated through use of a linearized multistage model or other appropriate model. Slope factor is expressed in milligrams per kilogram per day of exposure to the chemical in question.

~~(79)~~ **(81)** "Species mean acute value" or "SMAV" means the geometric mean of the results of all acceptable flow-through acute toxicity tests (for which the concentrations of the test material were measured) with the most sensitive tested life stage of the species. For a species for which no ~~such~~ result is available for the most sensitive tested life stage, the SMAV is the geometric mean of the results of all acceptable acute toxicity tests with the most sensitive tested life stage.

~~(80)~~ **(82)** "Species mean chronic value" or "SMCV" means the geometric mean of the results of all acceptable life-cycle and partial life-cycle toxicity tests with the species; for a species of fish for which no ~~such~~ result is available, the SMCV is the geometric mean of all acceptable early life-stage tests.

~~(81)~~ **(83)** "Steady-state" means an equilibrium condition has been achieved in the body burden of a substance

in an organism. Steady-state is assumed when the rate of loss of a substance matches its rate of uptake.

~~(82)~~ **(84)** "Stream design flow" means the stream flow that represents critical conditions, upstream from the source, for protection of aquatic life, human health, or wildlife.

~~(83)~~ **(85)** "Subchronic effect" means an adverse effect, measured by assessing an acceptable endpoint, resulting from continual exposure for a period of time less than that deemed necessary for a chronic test.

~~(84)~~ **(86)** "Surface waters of the state" or "surface water" has the meaning set forth in IC 13-11-2-265, except that the term does not include underground waters with the exception of the following:

(A) The underground portion of the Lost River and its underground tributaries.

(B) Any other underground stream that supports fish or other higher aquatic life forms and its underground tributaries.

~~(85)~~ **(87)** "Threshold effect" means an effect of a substance for which there is a theoretical or empirically established dose or concentration below which the effect does not occur.

~~(86)~~ **(88)** "Tier I criteria" means numeric values derived by use of the Tier I procedures in sections 11 and 13 through 16 of this rule that either have been adopted as numeric criteria into a water quality standard or are used to implement narrative water quality criteria.

~~(87)~~ **(89)** "Tier II values" means numeric values derived by use of the Tier II procedures in sections 12 through 16 of this rule that are used to implement narrative water quality criteria.

~~(88)~~ **(90)** "Toxic substances" means substances that are or may become harmful to:

(A) aquatic life;

(B) humans;

(C) other animals;

(D) plants; or

(E) food chains;

when present in sufficient concentrations or combinations. Toxic substances include, but are not limited to, those pollutants identified as toxic under Section 307(a)(1) of the Clean Water Act.

~~(89)~~ **(91)** "Tributaries of the Great Lakes system" means all waters of the Great Lakes system that are not open waters of Lake Michigan.

~~(90)~~ **(92)** "Trophic level" means a functional classification of taxa within a community that is based on feeding relationships. For example, aquatic green plants comprise the first trophic level and herbivores comprise the second.

~~(91)~~ **(93)** "Uncertainty factor" or "UF" means one (1) of several numeric factors used in operationally deriving criteria from experimental data to account for the quality or quantity of the available data.

~~(92)~~ **(94)** "Uptake" means acquisition of a substance from the environment by an organism as a result of any active or passive process.

~~(93)~~ **(95)** "Variance" means a deviation from a water quality standard.

~~(94)~~ **(96)** "Water-effect ratio" or "WER" means the ratio that is computed as a specific pollutant's acute or chronic toxicity endpoint measured in water from the site covered by the criterion, divided by the respective acute or chronic toxicity endpoint in laboratory dilution water.

~~(95)~~ **(97)** "Waters of the state" has the meaning set forth in IC 13-11-2-265.

~~(96)~~ **(98)** "Water use designations" means a use of the waters of the state as established by this rule, including ~~but not limited to,~~ the following:

(A) Industrial water supply.

(B) Agricultural use.

(C) Public water supply.

(D) Full body contact.

(E) Aquatic life.

(F) Limited use.

~~(97)~~ **(99)** "Well-balanced aquatic community" means an aquatic community that:

(A) is diverse in species composition;

(B) contains several different trophic levels; and

(C) is not composed mainly of pollution tolerant species.

~~(98)~~ **(100)** "Wildlife criterion" or "WC" means the criterion used to denote the number derived from data meeting the Tier I minimum database requirements and will be protective of the two (2) classes of wildlife. The term is synonymous with GLWC, and the two (2) are used interchangeably.

~~(99)~~ **(101)** "Wildlife value" or "WV" means:

(A) a value used to denote each representative species that results from using the equation presented in section 15 of this rule;

(B) the value obtained from averaging species values within a class; or

(C) any value derived from application of the site-specific procedure provided in section 16 of this rule.

The WVs calculated for the representative species are used to calculate taxonomic class-specific WVs. The WV is the concentration of a substance that, if not exceeded, should better protect the taxon in question.

~~(100)~~ **(102)** "Zone of initial dilution" or "ZID" means the area of the receiving water directly after the end of the pipe where an instantaneous volume of water gives up to a one-to-one (1:1) dilution of the discharge.

(Water Pollution Control Division; 327 IAC 2-1.5-2; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1363; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3376; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2068)

SECTION 6. 327 IAC 2-1.5-10 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.5-10 Methods of analysis

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 10. The analytical procedures used as methods of analysis to determine the chemical, bacteriological, biological, and radiological quality of waters sampled ~~shall~~ **must** be **completed** in accordance with 40 CFR 136* or methods approved by the commissioner.

***This document is incorporated by reference. Copies may be obtained from the Government Publishing Office, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-1.5-10; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1381; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2084)

SECTION 7. 327 IAC 2-1.5-13 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.5-13 Determination of bioaccumulation factors (BAFs)

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 13. (a) This section describes procedures for deriving ~~bioaccumulation factors~~ BAFs to be used in the calculation of human health Tier I criteria and Tier II values, and **criteria documents issued after January 1, 1980, and** wildlife Tier I criteria. A subset of the human health BAFs is also used to identify the chemicals that are considered ~~bioaccumulative chemicals of concern~~ BCCs. BAFs are derived as follows:

(1) Bioaccumulation reflects uptake of a substance by aquatic organisms exposed to the substance through all routes, such as ambient water and food, as would occur in nature. Bioconcentration reflects uptake of a substance by aquatic organisms exposed to the substance only through the ambient water. Both BAFs and ~~bioconcentration factors~~ BCFs are proportionality constants that describe the relationship between the concentration of a substance in aquatic organisms and its concentration in the ambient water. In this section, BAFs, rather than BCFs, are used to calculate Tier I criteria for human health and wildlife, and Tier II values for human health, because they better account for the total exposure of aquatic organisms to chemicals.

(2) For organic chemicals, the lipid content of the aquatic organisms is used to account for partitioning of organic chemicals within organisms, so that data from different tissues and species can be integrated. The baseline BAF is based on the concentration of freely dissolved organic chemicals in the ambient water to facilitate extrapolation from one (1) water to another. Baseline BAFs ~~shall~~ **must** be derived using one (1) of the following four (4) methods:

(A) Measured baseline BAFs are derived from field-measured BAFs.

(B) Predicted baseline BAFs are derived using biota-sediment accumulation factors (BSAFs).

(C) Predicted baseline BAFs are derived by multiplying a laboratory-measured BCF by a food-chain multiplier (FCM).

(D) Predicted baseline BAFs are derived by multiplying a predicted BCF by a FCM.

(3) For inorganic chemicals, BAFs are assumed to equal BCFs (that is, the FCM is one (1.0)), unless chemical-specific biomagnification data support using a FCM other than one (1.0). The baseline BAFs are derived using either of the following two (2) methods:

(A) Field-measured BAFs.

(B) By multiplying laboratory-measured BCFs by a FCM.

(4) Because both humans and wildlife consume fish from both trophic levels three (3) and four (4), two (2) baseline BAFs are needed to calculate either a human health criterion or value, or a wildlife criterion, for a

chemical. When appropriate, ingestion through consumption of invertebrates, plants, mammals, and birds in the diet of wildlife species to be protected may be taken into account.

(b) The following procedures ~~shall~~ **must** be used to review and select the data necessary to determine BAFs, BSAFs, and BCFs:

(1) Measured BAFs, BSAFs, and BCFs are assembled from available sources, including the following:

(A) U.S. EPA Ambient Water Quality Criteria* documents issued after January 1, 1980.

(B) Published scientific literature.

(C) Reports issued by U.S. EPA or other reliable sources.

(D) Unpublished data.

(E) Sources referenced in the Aquatic Toxicity Information Retrieval (AQUIRE) database*.

(2) The following procedural and quality assurance requirements ~~shall~~ **must** be met for field-measured BAFs:

(A) The field studies used ~~shall~~ **must** be limited to those conducted in the Great Lakes system, with fish at or near the top of the aquatic food chain ~~for example,~~ **such as** in trophic levels three (3) or four (4).

(B) The trophic level of the fish species ~~shall~~ **must** be determined.

(C) The site of the field study should not be so unique that the BAF cannot be extrapolated to other locations where the criteria and values will apply.

(D) For organic chemicals, the percent lipid ~~shall~~ **must** be either measured or reliably estimated for the tissue used in the determination of the BAF.

(E) The concentration of the chemical in the water ~~shall~~ **must** be measured in a way that can be related to particulate organic carbon (POC) or dissolved organic carbon (DOC), and should be relatively constant during the steady-state time period.

(F) For organic chemicals with log K_{OW} greater than four (4), the concentrations of POC and DOC in the ambient water ~~shall~~ **must** be either measured or reliably estimated.

(G) For inorganic and organic chemicals, BAFs ~~shall~~ **must** be used only if they are expressed on a wet weight basis. BAFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured or reliably estimated for the tissue used in the determination of the BAF.

(3) The following procedural and quality assurance requirements ~~shall~~ **must** be met for field-measured BSAFs:

(A) The field studies used ~~shall~~ **must** be limited to those conducted in the Great Lakes system, with fish at or near the top of the aquatic food chain ~~for example,~~ **such as** in trophic levels three (3) or four (4).

(B) Samples of surface sediments (zero (0) to one (1) centimeter is ideal) ~~shall~~ **must** be from locations ~~in which~~ **where** there ~~is~~ **are** net ~~deposition~~ **depositions** of fine sediment, and ~~is~~ **that are** representative of average surface sediment in the vicinity of the organism.

(C) The K_{OW}s used ~~shall~~ **must** be of acceptable quality as described in subdivision (6).

(D) The site of the field study should not be so unique that the resulting BAF cannot be extrapolated to other locations where the criteria and values will apply.

(E) The trophic level of the fish species ~~shall~~ **must** be determined.

(F) The percent lipid ~~shall be either~~ **must either be** measured, or reliably estimated, for the tissue used in the determination of the BAF.

(4) The following procedural and quality assurance requirements ~~shall~~ **must** be met for laboratory-measured BCFs:

(A) The test organism ~~shall~~ **must** not be diseased, unhealthy, or adversely affected by the concentration of the chemical.

(B) The total concentration of the chemical in the water ~~shall~~ **must** be measured, and should be relatively constant during the steady-state time period.

(C) The organisms ~~shall~~ **must** be exposed to the chemical using a flow-through or renewal procedure.

(D) For organic chemicals, the percent lipid ~~shall be either~~ **must either be** measured or reliably estimated for the tissue used in the determination of the BCF.

(E) For organic chemicals with log K_{OW} greater than four (4), the concentrations of POC and DOC in the test solution ~~shall be either~~ **must either be** measured or reliably estimated.

(F) Laboratory-measured BCFs should be determined using fish species, but BCFs determined with molluscs and other invertebrates may be used with caution. For example, because invertebrates metabolize some chemicals less efficiently than vertebrates, a baseline BCF determined for ~~such~~ a chemical using invertebrates is expected to be higher than a comparable baseline BCF determined using fish.

(G) If laboratory-measured BCFs increase or decrease as the concentration of the chemical increases in the test solutions in a bioconcentration test, the BCF measured at the lowest test concentration that is above concentrations existing in the control water ~~shall~~ **must** be used. For example, a BCF should not be calculated from a control treatment. The concentrations of an inorganic chemical in a bioconcentration test should be:

(i) greater than normal background levels; and

(ii) greater than levels required for normal nutrition of the test species if the chemical is a micronutrient; but below levels that adversely affect the species. Bioaccumulation of an inorganic chemical might be overestimated if concentrations are at or below normal background levels due to ~~for example,~~ nutritional requirements of the test organisms, **for example.**

(H) For inorganic and organic chemicals, BCFs ~~shall~~ **must** be used only if they are expressed on a wet weight basis. BCFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured, or reliably estimated, for the tissue used in the determination of the BAF.

(I) BCFs for organic chemicals may be based on measurement of radioactivity only when the BCF is intended to include metabolites, or when there is confidence that there is no interference due to metabolites.

(J) The calculation of the BCF must appropriately address growth dilution.

(K) Other aspects of the methodology used ~~shall~~ **must** be similar to those described by ASTM, ~~1990,~~ **2013,** Standard Practice for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs, Standard E 1022**.

(5) The following procedural and quality assurance requirements ~~shall~~ **must** be met for predicted BCFs:

(A) The K_{OW} used ~~shall~~ **must** be of acceptable quality as described in subdivision (6).

(B) The predicted baseline BCF ~~shall~~ **must** be calculated using the equation:

$$\text{predicted baseline BCF} = K_{OW}$$

Where: K_{OW} = octanol-water partition coefficient.

(6) The value of K_{OW} ~~shall~~ **must** be determined as follows:

(A) The value of K_{OW} used for an organic chemical ~~shall~~ **must** be determined by giving priority to the experimental and computational techniques used as follows:

(i) Where the Log K_{OW} is less than four (4) (Log K_{OW} < 4):

Priority	Technique
1	Slow-stir
1	Generator-column
1	Shake-flask
2	Reverse-phase liquid chromatography on C18 chromatography packing with extrapolation to zero percent solvent
3	Reverse-phase liquid chromatography on C18 chromatography packing without extrapolation to zero percent solvent
4	Calculated by the CLOGP program

(ii) Where the Log K_{OW} is greater than four (4) (Log K_{OW} > 4):

Priority	Technique
1	Slow-stir
1	Generator-column
2	Reverse-phase liquid chromatography on C18 chromatography packing with extrapolation to zero percent solvent
3	Reverse-phase liquid chromatography on C18 chromatography packing without extrapolation to zero percent solvent
4	Shake-flask
5	Calculated by the CLOGP program

(B) The CLOGP program is a computer program available from Pomona College. A value of K_{OW} that seems to be different from the others should be considered an outlier and not used. The value of K_{OW} used for an organic chemical ~~shall~~ **must** be the geometric mean of the available K_{OW}s with highest priority, or can be calculated from the arithmetic mean of the available log K_{OW}s with the highest priority. Because it is an intermediate value in the derivation of a BAF, the value used for the K_{OW} of a chemical should not be rounded to fewer than three (3) significant digits, and a value for log K_{OW} should not be rounded to fewer than three (3) significant digits after the decimal point.

(7) This section provides overall guidance for the derivation of BAFs, but it cannot cover all the decisions that must be made in the review and selection of acceptable data. Professional judgment is required throughout the process. A degree of uncertainty is associated with the determination of any BAF, BSAF, BCF, or K_{OW}. The amount of uncertainty in a baseline BAF depends on both the quality of data available and the method used to derive the BAF.

(8) ~~Hereinafter~~ In ~~this section~~ **subsections (c) through (g),** "BAF", "BSAF", "BCF", and "K_{OW}" refer to the "BAF", "BSAF", "BCF", and "K_{OW}" that are consistent with the procedural and quality assurance requirements

given in this subsection.

(c) For comparative purposes, baseline BAFs should be derived for each chemical by as many of the four (4) methods as available data allow. Baseline BAFs ~~shall~~ **must** be derived using the following four (4) methods, which are listed from most preferred to least preferred:

(1) A measured baseline BAF for an organic or inorganic chemical derived from a field study of acceptable quality.

(2) A predicted baseline BAF for an organic chemical derived using field-measured BSAFs of acceptable quality.

(3) A predicted baseline BAF for an organic or inorganic chemical derived from a BCF measured in a laboratory study of acceptable quality and an FCM.

(4) A predicted baseline BAF for an organic chemical derived from a K_{OW} of acceptable quality and an FCM.

(d) The following procedures ~~shall~~ **must** be used to calculate baseline BAFs for organic chemicals:

(1) The following procedures ~~shall~~ **must** be used to determine the lipid-normalized concentration:

(A) It is assumed that BAFs and BCFs for organic chemicals can be extrapolated on the basis of percent lipid from one (1) tissue to another and from one (1) aquatic species to another in most cases.

(B) Because BAFs and BCFs for organic chemicals are related to the percent lipid, it does not make any difference whether the tissue sample is whole body or edible portion, but both the BAF (or BCF) and the percent lipid must be determined for the same tissue. The percent lipid of the tissue should be measured during the BAF or BCF study, but in some cases it can be reliably estimated from measurements on tissue from other organisms. If percent lipid is not reported for the test organisms in the original study, it may be obtained from the author; or, in the case of a laboratory study, lipid data for the same or a comparable laboratory population of test organisms that were used in the original study may be used.

(C) The lipid-normalized concentration, C_ℓ, of a chemical in tissue is defined using the following equation:

$$C_\ell = \frac{C_B}{f_\ell}$$

Where: C_B = concentration of the organic chemical in the tissue of aquatic biota (either whole organism or specified tissue) (micrograms per gram).

f_ℓ = fraction of the tissue that is lipid.

(2) By definition, baseline BAFs and BCFs for organic chemicals, whether measured or predicted, are based on the concentration of the chemical that is freely dissolved in the ambient water in order to account for bioavailability. The following procedures ~~shall~~ **must** be used to determine this freely dissolved concentration:

(A) For the purposes of this subsection, the relationship between the total concentration of the chemical in the water (that which is freely dissolved plus that which is sorbed to particulate organic carbon or to dissolved organic carbon), to the freely dissolved concentration of the chemical in the ambient water, ~~shall~~ **must** be calculated using the following equation:

$$C_w^{fd} = (f_{fd})(C_w^t)$$

Where:

C_w^{fd} = freely dissolved concentration of the organic chemical in the ambient water.

C_w^t = total concentration of the organic chemical in the ambient water.

f_{fd} = fraction of the total chemical in the ambient water that is freely dissolved.

(B) The fraction of the total chemical in the ambient water that is freely dissolved, f_{fd}, ~~shall~~ **must** be calculated using the following equation:

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{OW})}{10} + (POC)(K_{OW})}$$

Where: DOC = concentration of dissolved organic carbon in kilograms of dissolved organic carbon per liter of water.

K_{OW} = octanol-water partition coefficient of the chemical.

POC = concentration of particulate organic carbon in kilograms of particulate organic carbon per liter of water.

(3) In the absence of a field-measured BAF or a predicted BAF derived from a BSAF, a food-chain multiplier (FCM) ~~shall~~ **must** be used to calculate the baseline BAF for trophic levels three (3) and four (4) from a laboratory-measured or predicted BCF. For an organic chemical, the FCM used ~~shall~~ **must** be derived from Table 13-1 in subsection (h), using the chemical's log K_{OW} and linear interpolation. An FCM greater than one (1.0) applies to most organic chemicals with a log K_{OW} of four (4) or more. The trophic level used ~~shall~~ **must** take into account the age or size of the fish species consumed by the human, avian, or mammalian predator because, for some species of fish, the young are in trophic level three (3), whereas the adults are in trophic level four (4).

(4) A baseline BAF ~~shall~~ **must** be calculated from a field-measured BAF of acceptable quality using the following equation:

$$\text{Baseline BAF} = \left[\frac{\text{Measured BAF}_T^t}{f_{fd}} - 1 \right] \left(\frac{1}{f_\ell} \right)$$

Where: BAF_T^t = based on total concentration in tissue and water.

f_ℓ = fraction of the tissue that is lipid.

f_{fd} = fraction of the total chemical that is freely dissolved in the ambient water.

The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the field-measured BAF. For each trophic level, a species mean measured baseline BAF ~~shall~~ **must** be calculated as the geometric mean if more than one (1) measured baseline BAF is available for a given species. For each trophic level, the geometric mean of the species mean measured baseline BAFs ~~shall~~ **must** be calculated. If a baseline BAF based on a measured BAF is available for either trophic level three (3) or four (4), but not both, a measured baseline BAF for the other trophic level ~~shall~~ **must** be calculated using the ratio of the FCMs that are obtained by linear interpolation from Table 13-1 in subsection (h) for the chemical.

(5) A baseline BAF ~~shall~~ **must** be calculated from a field-measured BAF in accordance with the following:

(A) A baseline BAF for organic chemical "i" ~~shall~~ **must** be calculated from a field-measured BSAF of acceptable quality using the following equation:

$$(\text{Baseline BAF})_i = (\text{Baseline BAF})_r \bullet \frac{(BSAF)_i \bullet (K_{OW})_i}{(BSAF)_r \bullet (K_{OW})_r}$$

Where: $(BSAF)_i$ = BSAF for chemical "i".

$(BSAF)_r$ = BSAF for the reference chemical "r".

$(K_{OW})_i$ = octanol-water partition coefficient for chemical "i".

$(K_{OW})_r$ = octanol-water partition coefficient for the reference chemical "r".

(B) A BSAF ~~shall~~ **must** be calculated using the following equation:

$$BSAF = \frac{C_\ell}{C_{SOC}}$$

Where: C_ℓ = the lipid-normalized concentration of the chemical in tissue.

C_{SOC} = the organic carbon-normalized concentration of the chemical in sediment.

(C) The organic carbon-normalized concentration of a chemical in sediment, C_{SOC}, ~~shall~~ **must** be calculated using the following equation:

$$C_{SOC} = \frac{C_S}{f_{OC}}$$

Where: C_S = concentration of chemical in sediment (micrograms per gram of sediment).

f_{OC} = fraction of the sediment that is organic carbon.

(D) Predicting BAFs from BSAFs requires data from a steady-state (or near steady-state) condition between sediment and ambient water for both a reference chemical "r" with a field-measured BAF^d, and other chemicals "n = i" for which BSAFs are to be determined.

(E) The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the BSAF. For each trophic level, a species mean baseline BAF ~~shall~~ **must** be calculated as the geometric mean if more than one (1) baseline BAF is predicted from BSAFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs derived using BSAFs ~~shall~~ **must** be calculated.

(F) If a baseline BAF based on a measured BSAF is available for either trophic level three (3) or four (4), but not both, a baseline BAF for the other trophic level ~~shall~~ **must** be calculated using the ratio of the FCMs that are obtained by linear interpolation from Table 13-1 in subsection (h) for the chemical.

(6) A baseline BAF for trophic level three (3), and a baseline BAF for trophic level four (4), ~~shall~~ **must** be calculated from a laboratory-measured BCF of acceptable quality and a FCM using the following equation:

$$\text{Baseline BAF} = (FCM)\left[\frac{\text{Measured } BCF_T^t}{f_{fd}} - 1\right]\left(\frac{1}{f_\ell}\right)$$

Where: BCF_T^t = BCF based on total concentration in tissue and water.

f_ℓ = fraction of the tissue that is lipid.

f_{fd} = fraction of the total chemical in the test water that is freely dissolved.

FCM = the food-chain multiplier obtained from Table 13-1 in subsection (h) by linear interpolation for trophic level three (3) or four (4), as necessary.

For each trophic level, a species mean baseline BAF ~~shall~~ **must** be calculated as the geometric mean if more than one (1) baseline BAF is predicted from laboratory-measured BCFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs based on laboratory-measured BCFs ~~shall~~ **must** be calculated.

(7) A baseline BAF for trophic level three (3), and a baseline BAF for trophic level four (4), ~~shall~~ **must** be calculated from a K_{OW} of acceptable quality and a FCM using the following equation:

$$\text{Baseline BAF} = (FCM)(\text{predicted baseline BCF}) = (FCM)(K_{OW})$$

Where: FCM = the food-chain multiplier obtained from Table 13-1 in subsection (h) by linear interpolation

for trophic level three (3) or four (4) as necessary.

K_{OW} = octanol-water partition coefficient.

(e) The following procedures ~~shall~~ **must** be used to calculate human health and wildlife BAFs for organic chemicals:

(1) To calculate human health and wildlife BAFs for an organic chemical, the K_{OW} of the chemical ~~shall~~ **must** be used with a POC concentration of 0.00000004 kilograms per liter and a DOC concentration of 0.000002 kilograms per liter to yield the fraction freely dissolved:

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{OW})}{10} + (POC)(K_{ow})}$$

$$= \frac{1}{1 + \frac{\left(0.000002\frac{kg}{L}\right)(K_{OW})}{10} + \left(0.00000004\frac{kg}{L}\right)(K_{OW})}$$

$$= \frac{1}{1 + (0.00000024\frac{kg}{L})(K_{OW})}$$

(2) The human health BAFs for an organic chemical ~~shall~~ **must** be calculated using the following equations:

(A) For trophic level three (3):

$$\text{Human Health } BAF_{TL3}^{HH} = [(\text{baseline BAF})(0.0182) + 1](f_{fd})$$

Where: 0.0182 is the standardized fraction lipid ~~values~~ **value** for trophic level three (3) that is used to derive human health criteria and values.

(B) For trophic level four (4):

$$\text{Human Health } BAF_{TL4}^{HH} = [(\text{baseline BAF})(0.0310) + 1](f_{fd})$$

Where: 0.0310 is the standardized fraction lipid ~~values~~ **value** for trophic level four (4) that is used to derive human health criteria and values.

(3) The wildlife BAFs for an organic chemical ~~shall~~ **must** be calculated using the following equations:

(A) For trophic level three (3):

$$\text{Wildlife } BAF_{TL3}^{WL} = [(\text{baseline BAF})(0.0646) + 1](f_{fd})$$

Where: 0.0646 is the standardized fraction lipid value for trophic level three (3) that is used to derive wildlife criteria.

(B) For trophic level four (4):

$$\text{Wildlife } BAF_{TL4}^{WL} = [(\text{baseline BAF})(0.1031) + 1](f_{fd})$$

Where: 0.1031 is the standardized fraction lipid ~~values~~ **value** for trophic level four (4) that is used to derive wildlife criteria.

(f) The following procedures ~~shall~~ **must** be used to calculate human health and wildlife BAFs for inorganic

chemicals:

(1) For inorganic chemicals, the baseline BAFs for trophic levels three (3) and four (4) are both assumed to equal the BCF determined for the chemical with fish; for example, the FCM is assumed to be one (1) for both trophic levels three (3) and four (4). However, an FCM greater than one (1) might be applicable to some metals, such as mercury, if ~~for example,~~ an organometallic form of the metal biomagnifies, **for example.**

(2) The following procedures ~~shall~~ **must** be used to calculate human health BAFs for inorganic chemicals:

(A) Measured BAFs and BCFs used to determine human health BAFs for inorganic chemicals ~~shall~~ **must** be based on **the** edible tissue, such as muscle, of freshwater fish, unless it is demonstrated that whole body BAFs or BCFs are similar to edible tissue BAFs or BCFs. BCFs and BAFs based on measurements of aquatic plants and invertebrates should not be used in the derivation of human health criteria and values.

(B) If one (1) or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with the muscle of fish:

(i) for each trophic level, a species mean measured baseline BAF ~~shall~~ **must** be calculated as the geometric mean if more than one (1) measured BAF is available for a given species; and

(ii) for each trophic level, the geometric mean of the species mean measured baseline BAFs ~~shall~~ **must** be used as the human health BAF for that chemical.

(C) If an acceptable measured baseline BAF is not available for an inorganic chemical and one (1) or more acceptable edible portion laboratory measured BCFs are available for the chemical, a predicted baseline BAF ~~shall~~ **must** be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM will be one (1.0) unless chemical-specific biomagnification data support using a multiplier other than one (1.0). The predicted baseline BAF ~~shall~~ **must** be used as the human health BAF for that chemical.

(3) The following procedures ~~shall~~ **must** be used to calculate wildlife BAFs for inorganic chemicals:

(A) Measured BAFs and BCFs used to determine wildlife BAFs for inorganic chemicals ~~shall~~ **must** be based on whole body freshwater fish and invertebrate data, unless it is demonstrated that edible tissue BAFs or BCFs are similar to whole body BAFs or BCFs.

(B) If one (1) or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with whole body of fish or invertebrates:

(i) for each trophic level, a species mean measured baseline BAF ~~shall~~ **must** be calculated as the geometric mean if more than one (1) measured BAF is available for a given species; and

(ii) for each trophic level, the geometric mean of the species mean measured baseline BAFs ~~shall~~ **must** be used as the wildlife BAF for that chemical.

(C) If an acceptable measured baseline BAF is not available for an inorganic chemical, and one (1) or more acceptable whole body laboratory measured BCFs are available for the chemical, a predicted baseline BAF ~~shall~~ **must** be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM will be one (1.0) unless chemical-specific biomagnification data support using a multiplier other than one (1.0). The predicted baseline BAF ~~shall~~ **must** be used as the wildlife BAF for that chemical.

(g) For both organic and inorganic chemicals, human health and wildlife BAFs for both trophic levels ~~shall~~ **must** be reviewed for consistency with all available data concerning the bioaccumulation, bioconcentration, and metabolism of the chemical. For example, information concerning octanol-water partitioning, molecular size, or other physicochemical properties that might enhance or inhibit bioaccumulation should be considered for organic chemicals. BAFs derived in accordance with this methodology should be modified if changes are justified by available data.

(h) The following ~~shall~~ **must** be used to obtain food-chain multipliers:

Table 13-1
Food-Chain Multipliers for Trophic Levels 2, 3, and 4

Log K_{OW}	T. L. 2	T. L. 3[a]	T. L. 4
2.0	1.000	1.005	1.000
2.5	1.000	1.010	1.002
3.0	1.000	1.028	1.007
3.1	1.000	1.034	1.007
3.2	1.000	1.042	1.009
3.3	1.000	1.053	1.012
3.4	1.000	1.067	1.014
3.5	1.000	1.083	1.019
3.6	1.000	1.103	1.023
3.7	1.000	1.128	1.033

3.8	1.000	1.161	1.042
3.9	1.000	1.202	1.054
4.0	1.000	1.253	1.072
4.1	1.000	1.315	1.096
4.2	1.000	1.380	1.13
4.3	1.000	1.491	1.178
4.4	1.000	1.614	1.242
4.5	1.000	1.766	1.334
4.6	1.000	1.950	1.459
4.7	1.000	2.175	1.633
4.8	1.000	2.452	1.871
4.9	1.000	2.780	2.193
5.0	1.000	3.181	2.612
5.1	1.000	3.643	3.162
5.2	1.000	4.188	3.873
5.3	1.000	4.803	4.742
5.4	1.000	5.502	5.821
5.5	1.000	6.266	7.079
5.6	1.000	7.096	8.551
5.7	1.000	7.962	10.209
5.8	1.000	8.841	12.050
5.9	1.000	9.716	13.964
6.0	1.000	10.556	15.996
6.1	1.000	11.337	17.783
6.2	1.000	12.064	19.907
6.3	1.000	12.691	21.677
6.4	1.000	13.228	23.281
6.5	1.000	13.662	24.604
6.6	1.000	13.980	25.645
6.7	1.000	14.223	26.363
6.8	1.000	14.355	26.669
6.9	1.000	14.388	26.669
7.0	1.000	14.305	26.242
7.1	1.000	14.142	25.468
7.2	1.000	13.852	24.322
7.3	1.000	13.474	22.856
7.4	1.000	12.987	21.038
7.5	1.000	12.517	18.967
7.6	1.000	11.708	16.749
7.7	1.000	10.914	14.388
7.8	1.000	10.069	12.050
7.9	1.000	9.162	9.840
8.0	1.000	8.222	7.798
8.1	1.000	7.278	6.012
8.2	1.000	6.361	4.519
8.3	1.000	5.489	3.311
8.4	1.000	4.683	2.371
8.5	1.000	3.949	1.663
8.6	1.000	3.296	1.146
8.7	1.000	2.732	0.778
8.8	1.000	2.246	0.521
8.9	1.000	1.837	0.345
9.0	1.000	1.493	0.226

[a]The FCMs for trophic level 3 are the geometric mean of the FCMs for sculpin and alewife.

***Copies of these documents and access to the AQUIRE database may be obtained from U.S. EPA, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460, www.epa.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

****Copies of this document may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-1.5-13; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1392; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3377)

SECTION 8. 327 IAC 2-1.5-14 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.5-14 Determination of human health criteria and values

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 14. (a) This subsection establishes a procedure required when developing Tier I criteria and Tier II values for the protection of human health as follows:

(1) The goal of the human health criteria for the Great Lakes system is the protection of humans from unacceptable exposure to toxicants via consumption of contaminated fish and drinking water, and from ingesting water as a result of participation in water-oriented recreational activities.

(2) The criteria developed ~~shall~~ **must** provide a level of protection likely to be without appreciable risk of carcinogenic or noncarcinogenic effects. Criteria are a function of the level of designated risk or no adverse effect estimation, selection of data, and exposure assumptions. Ambient criteria for single carcinogens ~~shall~~ **must** not be set at a level representing a lifetime upper-bound incremental risk greater than one (1) in one hundred thousand (100,000) of developing cancer using the hazard assessment techniques and exposure assumptions described in this subsection. Criteria affording protection from noncarcinogenic effects ~~shall~~ **must** be established at levels that, taking into account uncertainties, are considered likely to be without an appreciable risk of adverse human health effects (such as acute, subchronic, and chronic toxicity, including reproductive and developmental effects) during a lifetime of exposure, using the risk assessment techniques and exposure assumptions described in this subsection.

(3) Chemical concentration levels in surface water protective of human health ~~shall~~ **must** be derived based on either a Tier I or Tier II classification. The two (2) Tiers are primarily distinguished by the amount of toxicity data available for deriving the concentration levels, and the quantity and quality of data on bioaccumulation.

(b) The best available toxicity data on the adverse health effects of a chemical and the best data on bioaccumulation factors ~~shall~~ **must** be used when developing human health Tier I criteria or Tier II values. The best available toxicity data ~~shall~~ **must** include data from well-conducted epidemiologic or animal studies that provide, in the case of carcinogens, an adequate weight of evidence of potential human carcinogenicity and, in the case of noncarcinogens, a dose-response relationship involving critical effects biologically relevant to humans. ~~Such~~ **The** information can be obtained from the U.S. EPA Integrated Risk Information System (IRIS) database*, the scientific literature, and other informational databases, studies, or reports containing adverse health effects data of adequate quality for use in this procedure. Strong consideration ~~shall~~ **must** be given to the most currently available guidance provided by IRIS in deriving criteria or values, supplemented with any recent data not incorporated into IRIS. When deviations from IRIS are anticipated or considered necessary, ~~such~~ actions ~~shall~~ **to address the deviations must** be communicated to the U.S. EPA Reference Dose (RfD) or the Cancer Risk Assessment Verification Endeavor (CRAVE) workgroup. The best available bioaccumulation data ~~shall~~ **must** include data from field studies and well-conducted laboratory studies **as follows:**

(1) Tier I criteria and Tier II values ~~shall~~ **must** be derived using the methodologies described in subsection (c)(1) when there is adequate evidence of potential human carcinogenic effects for a chemical. The U.S. EPA classification system for chemical carcinogens, which is described in the ~~1986~~ U.S. EPA Guidelines for ~~Carcinogenic~~ **Carcinogen** Risk Assessment, ~~(U.S. EPA, 1986) shall~~ **(EPA/630/P-03/001F, March 2005, and U.S. EPA 2005 Supplemental Guidance, EPA/630/R-03/00BF, March 2005)**, must** be used in determining whether adequate evidence of potential carcinogenic effects exists **as follows:**

(A) Carcinogens are classified, depending on the weight of evidence, as either human carcinogens,

probable human carcinogens, or possible human carcinogens. The human evidence is considered inadequate and therefore the chemical cannot be classified as a human carcinogen if one (1) of the two (2) following conditions exists:

(i) There are few pertinent data.

(ii) The available studies, while showing evidence of association, do not exclude chance, bias, or confounding and therefore a causal interpretation is not credible. The animal evidence is considered inadequate, and therefore the chemical cannot be classified as a probable or possible human carcinogen, when, because of major qualitative or quantitative limitations, the evidence cannot be interpreted as showing either the presence or absence of a carcinogenic effect.

(B) Chemicals are described as human carcinogens when there is sufficient evidence from epidemiological studies to support a causal association between exposure to the chemicals and cancer.

(C) Chemicals described as probable human carcinogens include chemicals for which the weight of evidence of human carcinogenicity based on epidemiological studies is limited. Limited human evidence is that which indicates that a causal interpretation is credible, but that alternative explanations, such as chance, bias, or confounding, cannot adequately be excluded. Probable human carcinogens are also agents for which there is sufficient evidence from animal studies, and for which there is inadequate evidence or no data from epidemiologic studies **as follows:**

(i) Sufficient animal evidence is provided by data that indicate that there is an increased incidence of malignant tumors or combined malignant and benign tumors:

(AA) in multiple species or strains;

(BB) in multiple experiments ~~for example,~~ with different routes of administration or using different dose levels, **for example;** or

(CC) to an unusual degree in a single experiment with regard to high incidence, unusual site or type of tumor, or early age at onset.

(ii) Additional evidence may be provided by data on dose-response effects, as well as information from short term tests such as mutagenicity and genotoxicity tests that help determine whether the chemical interacts directly with DNA, or on chemical structure, metabolism, or mode of action.

(D) Possible human carcinogens are chemicals with limited evidence of carcinogenicity in animals in the absence of human data **as follows:**

(i) Limited animal evidence is defined as data that suggest a carcinogenic effect but are limited because:

(AA) the studies involve a single species, strain, or experiment and do not meet criteria for sufficient evidence (see clause (C));

(BB) the experiments are restricted by inadequate dosage levels, inadequate duration of exposure to the agent, inadequate period of follow-up, poor survival, too few animals, or inadequate reporting; or

(CC) the studies indicate an increase in the incidence of benign tumors only.

(ii) More specifically, this group may include a wide variety of evidence, for example:

(AA) a malignant tumor response in a single, well-conducted experiment that does not meet conditions for sufficient evidence;

(BB) tumor response of marginal statistical significance in studies having inadequate design or reporting;

(CC) benign but not malignant tumors with an agent showing no response in a variety of short term tests for mutagenicity; and

(DD) response of marginal statistical significance in a tissue known to have a high or variable background rate.

(E) Weight of evidence of potential human carcinogenic effects sufficient to derive a Tier I human cancer criterion (HCC): ~~shall~~

(i) generally include human carcinogens; ~~and~~

(ii) generally include probable human carcinogens; and

(iii) may include, on a case-by-case basis, possible human carcinogens if studies have been well-conducted albeit based on limited evidence, when compared to studies used in classifying human and probable human carcinogens.

(F) The decision to use data on a possible human carcinogen for deriving Tier I criteria ~~shall~~ **must** be a case-by-case determination. In determining whether to derive a Tier I HCC, additional evidence that ~~shall~~ **must** be considered includes ~~but is not limited to,~~ the following:

(i) Available information on mode of action, such as mutagenicity and genotoxicity (determinations of whether the chemical interacts directly with DNA).

(ii) Structure activity.

(iii) Metabolism.

~~(F)~~ **(G)** Weight of evidence of possible human carcinogenic effects sufficient to derive a Tier II human cancer value ~~shall~~ **must** include those possible human carcinogens for which there are, at a minimum, data sufficient for quantitative risk assessment, but for which data are inadequate for Tier I criterion development due to a tumor response of marginal statistical significance or inability to derive a strong dose-response

relationship. As with the use of data on possible human carcinogens in developing Tier I criteria, the decision to use data on possible human carcinogens to derive Tier II values ~~shall~~ **must** be made on a case-by-case basis. In determining whether to derive Tier II human cancer values, additional evidence that ~~shall~~ **must** be considered includes, but is not limited to, the following:

(i) Available information on mode of action such as mutagenicity and genotoxicity (determinations of whether the chemical interacts directly with DNA).

(ii) Structure activity.

(iii) Metabolism.

(2) All available toxicity data ~~shall~~ **must** be evaluated considering the full range of possible health effects of a chemical, ~~for example,~~ **such as** acute/subacute, chronic/subchronic, and reproductive/developmental effects, in order to best describe the dose-response relationship of the chemical, and to calculate human noncancer criteria and values that will protect against the most sensitive endpoint of toxicity. Although it is desirable to have an extensive database that considers a wide range of possible adverse effects, this type of data exists for a very limited number of chemicals. For many others, there is a range in quality and quantity of data available. To ~~assure~~ **ensure** reliability of criteria and values, it is necessary to establish a minimum database with which to develop Tier I criteria or Tier II values. The following represent the minimum data sets necessary for this procedure:

(A) The minimum data set sufficient to derive a Tier I human noncancer criterion (HNC) ~~shall~~ **must** include at least one (1) well-conducted epidemiologic study or animal study. A well-conducted epidemiologic study for a Tier I HNC must quantify the exposure level and demonstrate positive association between exposure to a chemical and an adverse effect in humans. A well-conducted study in animals must demonstrate a dose-response relationship involving one (1) or more critical effects biologically relevant to humans. For example, study results from an animal whose pharmacokinetics and toxicokinetics match those of a human would be considered most biologically relevant. Ideally, the duration of a study should span multiple generations of exposed test species, or at least a major portion of the life span of one (1) generation. This type of data is currently very limited. By the use of uncertainty adjustments, shorter term studies such as ninety (90) day subchronic studies with evaluation of more limited effect may be used to extrapolate to longer exposures or to account for a variety of adverse effects. For Tier I criteria developed pursuant to this procedure, such a limited study must be conducted for at least ninety (90) days in rodents, or ten percent (10%) of the life span of other appropriate test species, and demonstrate a no observable adverse effect level (NOAEL). Chronic studies of one (1) year or longer in rodents, or fifty percent (50%) of the life span or greater in other appropriate test species, that demonstrate a lowest observable adverse effect level (LOAEL) may be sufficient for use in Tier I criterion derivation, if the effects observed at the LOAEL were relatively mild and reversible as compared to effects at higher doses. This does not preclude the use of a LOAEL from a study of chronic duration with only one (1) or two (2) doses, if the effects observed appear minimal when compared to effect levels observed at higher doses in other studies.

(B) When the minimum data for deriving Tier I criteria are not available to meet the Tier I data requirements, a more limited database may be considered for deriving Tier II values. As with Tier I criteria, all available data ~~shall~~ **must** be considered, and ideally should address a range of adverse health effects with exposure over a substantial portion of the life span, or multiple generations, of the test species. When ~~such~~ data are lacking, it may be necessary to rely on less extensive data in order to establish a Tier II value. With the use of appropriate uncertainty factors to account for a less extensive database, the minimum data sufficient to derive a Tier II value ~~shall~~ **must** include a NOAEL from at least one (1) well-conducted short term repeated dose study. This study ~~shall~~ **must** be of at least twenty-eight (28) days duration in animals demonstrating a dose-response, and involving effects biologically relevant to humans. Data from studies of longer duration, greater than twenty-eight (28) days, and LOAELs from these studies may be more appropriate in some cases for derivation of Tier II values. Use of a LOAEL should be based on consideration of the following information:

(i) Severity of effect.

(ii) Quality of the study.

(iii) Duration of the study.

(3) The following procedures ~~shall~~ **must** be used to determine minimum bioaccumulation data requirements:

(A) To be considered a Tier I cancer or noncancer human health criterion, along with satisfying the minimum toxicity data requirements of subdivisions (1)(E) and (2)(A), a chemical must have the following minimum bioaccumulation data:

(i) For all organic chemicals either:

(AA) a field-measured BAF;

(BB) a BAF derived using the BSAF methodology; or

(CC) a chemical with a BAF less than one hundred twenty-five (125) regardless of how the BAF was derived.

(ii) For all inorganic chemicals, including organometals such as mercury, either:

(AA) a field-measured BAF; or

(BB) a laboratory-measured BCF.

(B) A chemical is considered a Tier II cancer or noncancer human health value if it does not meet either the minimum toxicity data requirements of subdivisions (1)(E) and (2)(A) or the minimum bioaccumulation data requirements of clause (A).

(c) The fundamental components of the procedure to calculate Tier I criteria or Tier II values are the same. However, certain of the aspects of the procedure designed to account for short duration studies or other limitations in data are more likely to be relevant in deriving Tier II values than Tier I criteria. The following procedures ~~shall~~ **must** be used to develop Tier I criteria and Tier II values:

(1) The following procedures apply for carcinogens:

(A) A nonthreshold mechanism of carcinogenesis ~~shall~~ **must** be assumed unless biological data adequately demonstrate the existence of a threshold on a chemical-specific basis.

(B) All appropriate human epidemiologic data and animal cancer bioassay data ~~shall~~ **must** be considered. Data specific to an environmentally appropriate route of exposure ~~shall~~ **must** be used. Oral exposure should be used preferentially over dermal and inhalation since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. The risk associated dose ~~shall~~ **must** be set at a level corresponding to an incremental cancer risk of one (1) in one hundred thousand (100,000). If acceptable human epidemiologic data are available for a chemical, it ~~shall~~ **must** be used to derive the risk associated dose. If acceptable human epidemiologic data are not available, the risk associated dose ~~shall~~ **must** be derived from available animal bioassay data. Data from a species that is considered most biologically relevant to humans, ~~that is,~~ **or** responds most like humans, is preferred where all other considerations regarding quality of data are equal. In the absence of data to distinguish the most relevant species, data from the most sensitive species tested, that is, the species showing a carcinogenic effect at the lowest administered dose, ~~shall~~ **must** generally be used.

(C) When animal bioassay data are used and a nonthreshold mechanism of carcinogenicity is assumed, the data are fitted to a linearized multistage computer model. The upper bound ninety-five percent (95%) confidence limit on risk (or the lower ninety-five percent (95%) confidence limit on dose) at the one (1) in one hundred thousand (100,000) risk level ~~shall~~ **must** be used to calculate a risk-associated dose (RAD). Other models, including modifications or variations of the linear multistage model that are more appropriate to the available data, may be used where scientifically justified.

(D) If the duration of the study is significantly less than the natural life span of the test animal, the slope may be adjusted on a case-by-case basis to compensate for latent tumors that were not expressed. In the absence of alternative approaches that compensate for study durations significantly less than lifetime, the commissioner may use the process described in the 1980 National Guidelines (see 45 FR 79352).

(E) A species scaling factor ~~shall~~ **must** be used to account for differences between test species and humans. It ~~shall~~ **must** be assumed that milligrams per surface area per day is an equivalent dose between species ~~(1986~~ (U.S. EPA Guidelines for ~~Carcinogenic~~ **Carcinogen** Risk Assessment, **EPA/630/P-03/001F, March 2005, and U.S. EPA 2005 Supplemental Guidance, EPA/630/R-03/00BF, March 2005)**.** All doses presented in milligram per kilogram body weight will be converted to an equivalent surface area dose by raising the milligram per kilogram dose to the two-thirds (2/3) power. However, if adequate pharmacokinetic and metabolism studies are available, these data may be factored into the adjustment for species differences on a case-by-case basis.

(F) Additional data selection and adjustment decisions must also be made in the process of quantifying risk. Consideration must be given to tumor selection for modeling, ~~for example,~~ pooling estimates for multiple tumor types and identifying and combining benign and malignant tumors, **for example.** All doses ~~shall~~ **must** be adjusted to give an average daily dose over the study duration. Adjustments in the rate of tumor response must be made for early mortality in test species. The goodness-of-fit of the model to the data must also be assessed.

(G) When a linear, nonthreshold dose response relationship is assumed, the RAD ~~shall~~ **must** be calculated using the following equation:

$$RAD = \frac{0.00001}{q_1^*}$$

Where:

RAD = risk associated dose in milligrams of toxicant per kilogram body weight per day (mg/kg/day).

$0.00001\ (1 \times 10^{-5})$ = incremental risk of developing cancer equal to one (1) in one hundred thousand (100,000).

q_1^* = slope factor $(mg/kg/day)^{-1}$.

(H) If human epidemiologic data or other biological **animal** data ~~(animal)~~ indicate that a chemical causes cancer via a threshold mechanism, the risk associated dose may, on a case-by-case basis, be calculated using a method that assumes a threshold mechanism is operative.

(2) The following procedures apply for noncarcinogens:

(A) Noncarcinogens ~~shall~~ **must** generally be assumed to have a threshold dose or concentration below which no adverse effects should be observed. Therefore, the Tier I criterion or Tier II value is the maximum water concentration of a substance at or below which a lifetime exposure from drinking the water, consuming fish caught in the water, and ingesting water as a result of participating in water-related recreation activities is likely to be without appreciable risk of deleterious effects. For some noncarcinogens, there may not be a threshold dose below which no adverse effects should be observed. Chemicals acting as genotoxic teratogens and germline mutagens are thought to possibly produce reproductive or developmental effects via a genetically-linked mechanism which may have no threshold. Other chemicals also may not demonstrate a threshold. Criteria for these types of chemicals will be established on a case-by-case basis using appropriate assumptions reflecting the likelihood that no threshold exists.

(B) All appropriate human and animal toxicologic data ~~shall~~ **must** be reviewed and evaluated. To the maximum extent possible, data most specific to the environmentally relevant route of exposure ~~shall~~ **must** be used. Oral exposure data should be used preferentially over dermal and inhalation since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. When acceptable human data are not available, ~~for example,~~ **such as** well-conducted epidemiologic studies, animal data from species most biologically relevant to humans ~~shall~~ **must** be used. In the absence of data to distinguish the most relevant species, data from the most sensitive animal species tested, such as the species showing a toxic effect at the lowest administered dose (given a relevant route of exposure), should generally be used.

(C) Minimum data requirements are specified in subsection (b)(2). The experimental exposure level representing the highest level tested at which no adverse effects were demonstrated (NOAEL) from studies satisfying the provisions of subsection (b)(2) ~~shall~~ **must** be used for criteria calculations. In the absence of a NOAEL, the LOAEL from studies satisfying the provisions of subsection (b)(2) may be used if it is based on relatively mild and reversible effects.

(D) Uncertainty factors (UFs) ~~shall~~ **must** be used to account for the uncertainties in predicting acceptable dose levels for the general human population based upon experimental animal data or limited human data as follows:

(i) A UF of ten (10) ~~shall~~ **must** generally be used when extrapolating from valid experimental results from studies on prolonged exposure to average healthy humans. This ten (10) fold factor is used to protect sensitive members of the human population.

(ii) A UF of one hundred (100) ~~shall~~ **must** generally be used when extrapolating from valid results of long term studies on experimental animals, when results of studies of human exposure are not available or are inadequate. In comparison to item (i), this represents an additional ten (10) fold UF in extrapolating data from the average animal to the average human.

(iii) A UF of up to one thousand (1,000) ~~shall~~ **must** generally be used when extrapolating from animal studies for which the exposure duration is less than chronic, but greater than subchronic, ~~for example,~~ **such as** ninety (90) days or more in length, or when other significant deficiencies in study quality are present, and when useful long term human data are not available. In comparison to item (ii), this represents an additional UF of up to ten (10) fold for less than chronic, but greater than subchronic, studies.

(iv) A UF of up to three thousand (3,000) ~~shall~~ **must** generally be used when extrapolating from animal studies for which the exposure duration is less than subchronic, ~~for example,~~ **such as** twenty-eight (28) days. In comparison to item (ii), this represents an additional UF of up to thirty (30) fold for less than subchronic studies. The level of additional uncertainty applied for less than chronic exposures depends on the duration of the study used relative to the lifetime of the experimental animal.

(v) An additional UF of between one (1) and ten (10) may be used when deriving a criterion from a LOAEL. This UF accounts for the lack of an identifiable NOAEL. The level of additional uncertainty applied may depend upon the severity and the incidence of the observed adverse effect.

(vi) An additional UF of between one (1) and ten (10) may be applied when there are limited effects data or incomplete subacute or chronic toxicity data, ~~for example,~~ **such as** reproductive or developmental data. The level of quality and quantity of the experimental data available, as well as structure activity relationships, may be used to determine the factor selected.

(vii) When deriving a UF in developing a Tier I criterion or Tier II value, the total uncertainty, as calculated following the procedures in items (i) through (vi) ~~shall~~ **must** not exceed ten thousand (10,000) for Tier I criteria and thirty thousand (30,000) for Tier II values.

(E) All study results ~~shall~~ **must** be converted, as necessary, to the standard unit ~~for acceptable daily exposure~~ of milligrams of toxicant per kilogram of body weight per day (mg/kg/day). Doses ~~shall~~ **must** be adjusted for continuous exposure, that is, seven (7) days per week, twenty-four (24) hours per day.

(F) The ~~acceptable daily exposure (ADE) shall~~ **RfD must** be calculated using the following equation:

$$\text{~~ADE~~ RfD} = \frac{\text{NOAEL (or LOAEL)}}{\text{UF}}$$

Where:

~~ADE~~ **RfD** = ~~Acceptable daily exposure~~ **Reference dose** in milligrams of toxicant per kilogram body weight per day (mg/kg/day).

NOAEL (or LOAEL) = The no observed adverse effect level or lowest observed adverse effect level as determined in accordance with clause (C).

UF = The product of the uncertainty factors as determined in accordance with clause (D).

(3) The following procedures ~~shall~~ **must** be used to derive criteria and values:

(A) ~~The following represent~~ **This subdivision lists** the standard exposure assumptions used to calculate Tier I criteria and Tier II values for carcinogens and noncarcinogens. Different levels of exposure may be used where appropriate in deriving site-specific criteria pursuant to section 16 of this rule. **The standard exposure assumptions are as follows:**

(i) BW = Body weight of an average human (BW = 70 kilograms).

(ii) WC_d = Per capita water consumption, both drinking and incidental exposure, for surface waters classified as public water supplies = two (2) liters per day. ~~or~~

(iii) WC_r = Per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters per day.

(iv) FC = Per capita daily consumption of regionally caught freshwater fish = 0.015 kg/day (0.0036 kilograms per day for trophic level three (3) and 0.0114 kilograms per day for trophic level four (4)).

(v) BAF = Bioaccumulation factor for trophic level three (3) and trophic level four (4) as derived using the BAF methodology in section 13 of this rule.

(B) The Tier I human cancer criteria or Tier II values ~~shall~~ **must** be calculated as follows:

$$HCV = \frac{RAD \times BW}{WC + [(FC_{TL3} \times BAF_{TL3}^{HH}) + (FC_{TL4} \times BAF_{TL4}^{HH})]}$$

Where:

HCV = Human cancer value in milligrams per liter (mg/L).

RAD = Risk associated dose in milligrams toxicant per kilogram body weight per day (mg/kg/day) that is associated with a lifetime incremental cancer risk equal to one (1) in one hundred thousand (100,000).

BW = Weight of an average human (BW = 70 kilograms).

WC_d = Per capita water consumption, both drinking and incidental exposure, for surface waters classified as public water supplies = two (2) liters per day. ~~or~~

WC_r = Per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters per day.

FC_{TL3} = Mean consumption of trophic level three (3) of regionally caught freshwater fish = 0.0036 kilograms per day.

FC_{TL4} = Mean consumption of trophic level four (4) of regionally caught freshwater fish = 0.0114 kilograms per day.

BAF_{TL3}^{HH} = Bioaccumulation factor for trophic level three (3) fish as derived using the BAF methodology in section 13 of this rule.

BAF_{TL4}^{HH} = Bioaccumulation factor for trophic level four (4) fish as derived using the BAF methodology in section 13 of this rule.

(C) The Tier I human noncancer criteria or Tier II values ~~shall~~ **must** be calculated as follows:

$$HNV = \frac{\text{~~ADE~~ RfD} \times BW \times RSC}{WC + [(FC_{TL3} \times BAF_{TL3}^{HH}) + FC_{TL4} \times BAF_{TL4}^{HH})]}$$

Where:

HNV = Human noncancer value in milligrams per liter (mg/L).

~~ADE~~ **RfD** = ~~Acceptable daily exposure~~ **Reference dose** in milligrams toxicant per kilogram body weight per day (mg/kg/day).

RSC = Relative source contribution factor of eight-tenths (0.8). An RSC derived from actual exposure data may be developed using the methodology outlined by the 1980 National Guidelines (see 45 FR 79354).

BW = Weight of an average human (BW = 70 kilograms).

WC_d = Per capita water consumption, both drinking and incidental exposure, for surface waters classified as public water supplies = two (2) liters per day. ~~or~~

WC_r = Per capita incidental daily water ingestion for surface waters not used as human drinking water sources = 0.01 liters/day.

FC_{TL3} = Mean consumption of trophic level three (3) fish by regional sport fishers of regionally caught freshwater fish = 0.0036 kilograms per day.

FC_{TL4} = Mean consumption of trophic level four (4) fish by regional sport fishers of regionally caught freshwater fish = 0.0114 kilograms per day.

BAF_{TL3}^{HH} = Human health bioaccumulation factor for edible portion of trophic level three (3) fish as derived using the BAF methodology in section 13 of this rule.

BAF_{TL4}^{HH} = Human health bioaccumulation factor for edible portion of trophic level four (4) fish as derived using the BAF methodology in section 13 of this rule.

***This database may be accessed from the U.S. Environmental Protection Agency, IRIS Hotline c/o EPA Docket Center (EPA West, Mail Code 28221T), 1301 Constitution Avenue N.W., Washington, D.C. 20005, or www.epa.gov/iris.**

****These documents are incorporated by reference. Copies may be obtained from the U.S. Environmental Protection Agency, Office of Water Resource Center (EPA West, Room 1119), 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-1.5-14; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1398; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3377)

SECTION 9. 327 IAC 2-1.5-15 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-1.5-15 Determination of wildlife criteria

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 15. (a) This section establishes a procedure that is required when developing Tier I wildlife criteria for bioaccumulative chemicals of concern (BCCs) as follows:

(1) This method may be used for the development of Tier I criteria or Tier II values for pollutants other than BCCs for which the commissioner determines:

(A) Tier I criteria or Tier II values are necessary for the protection of wildlife in the Great Lakes basin; and

(B) that this method is applicable to the pollutant.

(2) In the event that this procedure is used to develop criteria for pollutants other than BCCs, the procedure for deriving bioaccumulation factors under section 13 of this rule must be used. For chemicals that do not

biomagnify to the extent of BCCs, it may be appropriate to select different representative species that are better examples of species with the highest exposures for the given chemical. In addition, section 16 of this rule describes the procedures for calculating site-specific wildlife criteria.

(b) The following procedures ~~shall~~ **must** be used to calculate wildlife values for Tier I criteria:

(1) Tier I wildlife values are to be calculated using the following equation:

$$WV = \frac{\frac{TD}{UF_A \times UF_S \times UF_L} \times Wt}{W + \sum (F_{TLi} \times BAF_{TLi}^{WL})}$$

Where:

WV = Wildlife value in milligrams of substance per liter (mg/L).

TD = Test dose (TD) in milligrams of substance per kilograms per day ~~(mg/kg-d)~~ **(mg/kg/d)** for the test species. This ~~shall~~ **must** be either a NOAEL or a LOAEL.

UF_A = Uncertainty factor (UF) for extrapolating toxicity data across species (unitless). A species-specific UF ~~shall~~ **must** be selected and applied to each representative species, consistent with the equation.

UF_S = UF for extrapolating from subchronic to chronic exposures (unitless).

UF_L = UF for LOAEL to NOAEL extrapolations (unitless).

Wt = Average weight in kilograms (kg) for the representative species.

W = Average daily volume of water consumed in liters per day (l/d) by the representative species.

F_{TLi} = Average daily amount of food consumed from trophic level i in kilograms per day (kg/d) by the representative species.

BAF_{TLi}^{WL} = Bioaccumulation factor (BAF) for wildlife food in trophic level i in liters per kilogram (l/kg), developed using the BAF methodology in section 13 of this rule. For consumption of piscivorous birds by other birds, for example, herring gull by eagles, the BAF is derived by multiplying the trophic level three (3) BAF for fish by a biomagnification factor to account for the biomagnification from fish to the consumed birds.

(2) For bioaccumulative chemicals, piscivorous species are identified as the focus of concern for wildlife criteria development in the Great Lakes. This methodology identifies three (3) avian species (eagle, kingfisher, and herring gull) and two (2) mammalian species (mink and otter) as representative species for protection. The TD obtained from toxicity data for each taxonomic class is used to calculate WVs for each of the five (5) representative species.

(3) The avian WV is the geometric mean of the WVs calculated for the three (3) representative avian species. The mammalian WV is the geometric mean of the WVs calculated for the two (2) representative mammalian species. The lower of the mammalian and avian WVs must be selected as the Great Lakes wildlife criteria (GLWC).

(c) The following procedures ~~shall~~ **must** be used to obtain the parameters of the effect component of the wildlife criteria procedure:

(1) A test dose (TD) value is required for criterion calculation. To derive a Tier I criterion for wildlife, the data set ~~shall~~ **must** provide enough data to generate a subchronic or chronic dose response curve for any given substance for both mammalian and avian species **as follows:**

(A) In reviewing the toxicity data available that meet the minimum data requirements for each taxonomic class, the following order of preference ~~shall~~ **must** be applied to select the appropriate TD to be used for calculation of individual WVs:

(i) Data from peer-reviewed field studies of wildlife species take precedence over other types of studies, where ~~such~~ **the** studies are of adequate quality. An acceptable field study must be of subchronic or chronic duration, provide a defensible, chemical specific dose response curve in which cause and effect are clearly established, and assess acceptable endpoints as defined in this rule.

(ii) When acceptable wildlife field studies are not available, or determined to be of inadequate quality, the

needed toxicity information may come from peer reviewed laboratory studies. When laboratory studies are used, preference ~~shall~~ **must** be given to laboratory studies with wildlife species over traditional laboratory animals to reduce uncertainties in making interspecies extrapolations.

(B) All available laboratory data and field studies ~~shall~~ **must** be reviewed to corroborate the final GLWC, to assess the reasonableness of the toxicity value used, and to assess the appropriateness of any UFs that are applied. When evaluating the studies from which a test dose is derived in general, the following requirements must be met:

(i) The mammalian data must come from at least one (1) well-conducted study of ninety (90) days or greater designed to observe subchronic or chronic effects as defined in this rule.

(ii) The avian data must come from at least one well-conducted study of twenty-eight (28) days or greater designed to observe subchronic or chronic effects as defined in this rule.

(iii) In reviewing the studies from which a TD is derived for use in calculating a WV, studies involving exposure routes other than oral may be considered only when an equivalent oral daily dose can be estimated and technically justified because the criteria calculations are based on an oral route of exposure.

(iv) In assessing the studies that meet the minimum data requirements, preference should be given to studies that assess effects on developmental or reproductive endpoints because, in general, these are more important endpoints in ensuring that a population's productivity is maintained.

(2) In selecting data to be used in the derivation of WVs, the evaluation of acceptable endpoints, as defined in this rule, will be the primary selection criterion. All data not part of the selected subset may be used to assess the reasonableness of the toxicity value and the appropriateness of the UFs that are applied **as follows:**

(A) If more than one (1) TD value is available within a taxonomic class, based on different endpoints of toxicity, that TD, which is likely to reflect best potential impacts to wildlife populations through resultant changes in mortality or fecundity rates, ~~shall~~ **must** be used for the calculation of WVs.

(B) If more than one (1) TD is available within a taxonomic class, based on the same endpoint of toxicity, the TD from the most sensitive species ~~shall~~ **must** be used.

(C) If more than one (1) TD based on the same endpoint of toxicity is available for a given species, the TD for that species ~~shall~~ **must** be calculated using the geometric mean of those TDs.

(3) The following exposure assumptions are made in the determination of the TD:

(A) In those cases in which a TD is available in units other than milligrams of substance per kilograms per day (mg/kg/d), clauses (B) and (C) ~~shall~~ **must** be used to convert the TD to the appropriate units prior to calculating a WV.

(B) If the TD is given in milligrams of toxicant per liter of water consumed by the test animals (mg/L), the TD ~~shall~~ **must** be multiplied by the daily average volume of water consumed by the test animals in liters per day (L/d) and divided by the average weight of the test animals in kilograms (kg).

(C) If the TD is given in milligrams of toxicant per kilogram of food consumed by the test animals (mg/kg), the TD ~~shall~~ **must** be multiplied by the average amount of food in kilograms consumed daily by the test animals (kg/d) and divided by the average weight of the test animals in kilograms (kg).

(4) Drinking and feeding rates ~~shall~~ **must** be determined as follows:

(A) When drinking and feeding rates and body weight are needed to express the TD in milligrams of substance per kilograms per day (mg/kg/d), they are obtained from the study from which the TD was derived. If not already determined, body weight and drinking and feeding rates are to be converted to a wet weight basis.

(B) If the study does not provide the needed values, the values ~~shall~~ **must** be determined from appropriate scientific literature. When scientific literature does not contain exposure information for the species used in a given study, either the allometric equations which are presented in clauses (C) and (D), or the exposure estimation methods presented in Chapter 4 of the Wildlife Exposure Factors Handbook (U.S. EPA, **EPA/600/R-93/187a and b, December** 1993)*, ~~shall~~ **must** be applied to approximate the needed feeding or drinking rates. The choice of the methods described in this clause is at the discretion of the commissioner.

(C) For mammalian species, the general allometric equations are:

(i) $F = (0.0687)(Wt)^{0.82}$

Where: F = Feeding rate of mammalian species in kilograms per day (kg/d) dry weight.
Wt = Average weight in kilograms (kg) of the test animals.

(ii) $W = (0.099)(Wt)^{0.90}$

Where: W = Drinking rate of mammalian species in liters per day (L/d).
Wt = Average weight in kilograms (kg) of the test animals.

(D) For avian species, the general allometric equations are:

(i) $F = (0.0582)(Wt)^{0.65}$

Where: F = Feeding rate of avian species in kilograms per day (kg/d) dry weight.
Wt = Average weight in kilograms (kg) of the test animals.

(ii) $W = (0.059)(Wt)^{0.67}$

Where: W = Drinking rate of avian species in liters per day (L/d).
Wt = Average weight in kilograms (kg) of the test animals.

(5) In those cases in which a NOAEL is unavailable as the TD and a LOAEL is available, the LOAEL may be used to estimate the NOAEL. If used, the LOAEL ~~shall~~ **must** be divided by ~~an~~ **the** UF to estimate a NOAEL for use in deriving WVs. The value of the UF ~~shall~~ **must** not be less than one (1) and should not exceed ten (10), depending on the dose-response curve and any other available data, and is represented by UF_L in the equation expressed in subsection (b)(1).

(6) In instances where only subchronic data are available, the TD may be derived from subchronic data. In ~~such~~ **these** cases, the TD ~~shall~~ **must** be divided by ~~an~~ **the** UF to extrapolate from subchronic to chronic levels. The value of the UF ~~shall~~ **must** not be less than one (1) and should not exceed ten (10), and is represented by UF_S in the equation expressed in subsection (b)(1). This factor is to be used when assessing highly bioaccumulative substances where toxicokinetic considerations suggest that a bioassay of limited length underestimates chronic effects.

(7) The following procedure ~~shall~~ **must** be used to determine an uncertainty factor for interspecies extrapolations (UF_A):

(A) The selection of the UF_A ~~shall~~ **must** be based on the available toxicological data and on available data concerning the physicochemical, toxicokinetic, and toxicodynamic properties of the substance in question and the amount and quality of available data. This value is ~~an~~ **the** UF that is intended to account for differences in toxicological sensitivity among species.

(B) For the derivation of Tier I criteria, a UF_A ~~shall~~ **must** not be less than one (1) and should not exceed one hundred (100), and ~~shall~~ **must** be applied to each of the five (5) representative species, based on existing data and best professional judgement. The value of UF_A may differ for each of the representative species.

(C) For Tier I wildlife criteria, the UF_A ~~shall~~ **must** be used only for extrapolating toxicity data across species within a taxonomic class, except as provided in this clause. The Tier I UF_A is not intended for interclass extrapolations because of the poorly defined comparative toxicokinetic and toxicodynamic parameters between mammals and birds. However, an interclass extrapolation employing a UF_A may be used for a given chemical if it can be supported by a validated biologically-based dose response model or by an analysis of interclass toxicological data, considering acceptable endpoints, for a chemical analog that acts under the same mode of toxic action.

(d) The following procedures ~~shall~~ **must** be used to determine the parameters of the exposure component of the wildlife criteria procedure:

(1) The body weights (Wt), feeding rates (F_{Tli}), drinking rates (W), and trophic level dietary composition, as food ingestion rate and percent in diet, for each of the five (5) representative species are presented in Table 15-1 in subsection (e).

(2) The procedure for the determination of bioaccumulation factors is contained under section 13 of this rule. Trophic levels three (3) and four (4) BAFs are used to derive WVs because these are the trophic levels at which the representative species feed.

(e) The following exposure parameters for the five (5) representative species identified for protection ~~shall~~ **must** be used:

Table 15-1
Exposure Parameters for the Five Representative Species Identified for Protection

Species	Adult Body Weight (kg)	Water Ingestion Rate (L/day)	Food Ingestion Rate of Prey in Each Trophic Level (kg/day)	Trophic Level of Prey (Percent of Diet)
Mink	0.80	0.081	TL3: 0.159	TL3: 90%
			Other: 0.0177	Other: 10%
Otter	7.4	0.600	TL3: 0.977	TL3: 80%
			TL4: 0.244	TL4: 20%
Kingfisher	0.15	0.017	TL3: 0.0672	TL3: 100%
Herring gull	1.1	0.063	TL3: 0.192	Fish: 90%
			TL4: 0.0480	TL3: 80%
			Other: 0.0267	TL4: 20%
				Other: 10%
Bald eagle	4.6	0.160	TL3: 0.371	Fish: 92%
			TL4: 0.0929	TL3: 80%

		PB: 0.0283 Other: 0.0121	TL4: 20% Birds: 8% PB: 70% nonaquatic: 30%

TL3 = trophic level three fish
TL4 = trophic level four fish
PB = piscivorous birds
Other = nonaquatic birds and mammals

***This document is incorporated by reference. Copies are available from the U.S. Environmental Protection Agency, Office of Water Resource Center, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-1.5-15; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1404; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3378)

SECTION 10. 327 IAC 2-3-1 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-3-1 Coal mines; acid mine drainage prohibitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3; IC 13-18-18
Affected: IC 13-18-4

Sec. 1. **(a)** Every person, firm, corporation or other legal entity who owns an active or abandoned coal mine or who is engaged in the storage, transportation, use, mining or processing of coal in the state of Indiana, shall dispose of refuse, including gob and coal fines, from processing coal, so as to create minimal acid mine drainage and deposits of coal fines in waters of this state. ~~No~~

(b) Gob ~~shall~~ **must not** be used in the construction of public or private roadways in the state of Indiana, which will cause acid mine drainage to the waters of this state under the jurisdiction of the ~~water pollution control~~ board.

(Water Pollution Control Division; 327 IAC 2-3-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 587; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 11. 327 IAC 2-4-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-4-3 Sampling frequency; methods of analysis

Authority: IC 13-14-8; IC 13-14-9; IC 13-18-3
Affected: IC 13-18-4

Sec. 3. Sampling, measurements of flow, and characteristics of the effluent ~~shall~~ **must** be performed at a frequency prescribed by the commissioner. All analytical work ~~shall~~ **must** be in accordance with 40 CFR 136* or other methods approved by the commissioner.

***This document is incorporated by reference. Copies may be obtained from the Government Publishing Office, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 2-4-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 587; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2097; readopted filed Nov 21, 2007, 1:19 p.m.: 20071219-IR-327070554BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 12. 327 IAC 2-10-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-10-3 Exclusions

Authority: IC 13-18-5
Affected: IC 13-11-2-160; IC 13-11-2-241; IC 13-23; IC 13-24

Sec. 3. (a) The requirements of this rule do not apply to **the following:**
(1) An aboveground storage tank, storage areas, or transfer areas for agricultural chemicals regulated by the office of the Indiana state chemist under 355 IAC 2 and 355 IAC 5.
(2) An aboveground storage tank, storage areas, or transfer areas regulated by the Indiana fire prevention and building safety commission pursuant to 675 IAC 22.
(3) An aboveground storage tank or storage areas containing liquids which are solids or gases above sixty (60) degrees Fahrenheit and at atmospheric pressure.
(4) An aboveground storage system or petroleum facility and other structures, equipment, and appurtenances thereto, used or capable of being used to store or transfer oil as defined in and regulated by 40 CFR 112* or petroleum as defined in IC 13-11-2-160.
(5) Underground storage tanks as defined in IC 13-11-2-241.
(6) Hazardous materials that are stored or transferred as products packaged for distribution to, and used by, the public.
(7) Aboveground storage tanks, storage areas, and transfer areas containing hazardous waste regulated under 329 IAC 3.1 and 42 U.S.C. 6991 through 6991(i)*. ~~as amended.~~
(8) Machinery and equipment containing integral operating fluids, provided that these fluids are necessary for the proper operation of the equipment.
(9) Process tanks.
(10) Piping, with the exception of any segment of piping extending from an aboveground storage tank to the point of the first fitting.
(11) Aboveground storage tanks used to store materials other than oils or petroleum products that:
(A) have a capacity of not more than six hundred sixty (660) gallons and are not in a delineated wellhead protection area as approved by the department under 327 IAC 8-4.1; or
(B) are less than two hundred seventy-five (275) gallons if at a facility that has been notified in writing by a water utility that it is located in a delineated public water supply wellhead protection area as approved by the department under 327 IAC 8-4.1.
(12) Storage ~~area~~ **areas** in which the drums and portable containers are considered empty of liquid hazardous materials if the standards set forth in 40 CFR 261.7* are met.

(b) Aboveground storage tanks, storage areas, and transfer areas constructed on or before the effective date of this rule are not subject to the requirements of sections 5 through 7 of this rule, except as provided in section 2 of this rule.

~~*The Code of Federal Regulations and the United States Code (U.S.C.) citations are incorporated by reference into this rule and are available from the Superintendent of Documents,~~ ***These documents are incorporated by reference. Copies of these documents may be obtained from the** Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402,~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 2-10-3; filed May 28, 1999, 11:42 a.m.: 22 IR 3099; errata filed Jun 8, 1999, 9:23 a.m.: 22 IR 3108; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 13. 327 IAC 2-11-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 2-11-3 Definitions

Authority: IC 13-18-3-1; IC 13-18-4-1; IC 13-18-4-3; IC 13-18-4-4; IC 13-18-4-5; IC 13-18-17-5
Affected: IC 13-11-2-71; IC 13-18-4; IC 13-18-17; IC 14-34

Sec. 3. The following definitions apply throughout this rule:

(1) "Agency" means one (1) or more of the following:
(A) The department of environmental management.
(B) The department of natural resources.
(C) The Indiana state department of health.
(D) The state chemist of the state of Indiana.
(E) The office of the state fire marshal.
(2) "Commissioner" means the commissioner of the department of environmental management.
(3) "Contaminant" means any solid, semisolid, liquid, or gaseous matter, or any odor, radioactive material, pollutant as defined by the federal Water Pollution Control Act (33 U.S.C. 1362(6))*, ~~as amended on December 16, 1996)*,~~ hazardous waste as defined in the federal Solid Waste Disposal Act (42 U.S.C. 6903(5))*, ~~as amended on March 26, 1996)**,~~ any constituent of a hazardous waste, or any combination of the items described in this subdivision, from whatever source, that:
(A) is injurious to human health, plant or animal life, or property;
(B) interferes unreasonably with the enjoyment of life or property; or
(C) otherwise violates:
(i) environmental management laws; or
(ii) rules adopted under environmental management laws.
(4) "Criterion" means a numeric value or a narrative statement established to maintain and protect the quality of ground water.
(5) "Drinking water well" means a bored, drilled, or driven shaft or a dug hole that meets the following:
(A) Supplies ground water for human consumption.
(B) Has a depth greater than its largest surface dimension.
(C) Is not permanently abandoned in accordance with ~~310 IAC 16-10-2.~~ **312 IAC 13-10-2.**
(6) "Environmental management laws" has the meaning set forth in IC 13-11-2-71.
(7) "Ground water" means water located below the ground surface in interconnected voids and pore spaces in the zone of saturation.
(8) "Ground water management zone" means a three (3) dimensional region of ground water around a potential or existing contaminant source, where a contaminant is or was managed to prevent or mitigate deterioration of ground water quality ~~such~~ **so** that the criteria established in this rule are met at and beyond the boundary of the region.
(9) "Naturally occurring concentration" means a constituent concentration in ground water that is not attributable to human activity.
(10) "Preventative action level" means a measured concentration of a chemical constituent that is:
(A) established on a site-specific or program-specific basis;
(B) used to evaluate sample analysis data from ground water monitoring systems;
(C) statistically measurable using standard laboratory analyses; and
(D) used to determine if further action is necessary to ensure the standards established in this rule are not violated.
(11) "Property boundary" means the edge of a contiguous parcel of land owned or leased by a common owner or lessee. Contiguous land ~~shall include~~ **includes** land separated by a public right-of-way, if that land would otherwise be contiguous.
(12) "Standards", when used without qualification, means:
(A) the numeric and narrative criteria;
(B) the classification plan; and
(C) the method of determining where the criteria must apply;
established by this rule.
(13) "Surface water quality standards" means the water quality standards established in 327 IAC 2-1 and 327 IAC 2-1.5.

~~*33 U.S.C. 1362(6) is incorporated by reference.~~ *Copies of ~~this publication~~ **these publications** may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

~~**42 U.S.C. 6903(5) is incorporated by reference. Copies of this publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

(Water Pollution Control Division; 327 IAC 2-11-3; filed Feb 4, 2002, 11:00 a.m.: 25 IR 1877; errata filed Feb 5,

2002, 1:52 p.m.: 25 IR 1906; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936; readopted filed Jun 4, 2008, 11:07 a.m.: 20080702-IR-327080207BFA; readopted filed Jul 30, 2014, 4:04 p.m.: 20140827-IR-327140189BFA)

SECTION 14. 327 IAC 3-2.1-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-2.1-3 Permitting authority and responsibilities

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-3-12; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. (a) The plans for a sanitary sewer extension are not required to be submitted to any state agency for a permit, permission, or review, unless required by federal law, if the following are met:

(1) A person submits plans to a unit concerning the design or construction of a sanitary sewer.
(2) A professional engineer prepared the plans.
(3) The unit provided a review of the plans by a qualified engineer and subsequently approved the plans.
(4) All other requirements specified in this rule and all other rules adopted by the ~~water pollution control~~ board are met.

(b) The proposed construction of a sanitary sewer must be in accordance with the Clean Water Act.

(c) The other requirements specified in rules that have been adopted by the ~~water pollution control~~ board and must be adhered to in the permitting of a sanitary sewer include, but are not limited to, the following:

(1) 327 IAC 1.
(2) 327 IAC 2.
(3) 327 IAC 4.
(4) 327 IAC 3-6.

(d) Units shall notify the commissioner that a sanitary sewer construction permit application has been received by submitting to the department, on the date received, the following information:

(1) Project name.
(2) Identification of the professional engineer and engineering firm, if applicable, who designed the project, plans, and specifications.
(3) The county of the construction project.
(4) The location of the construction project in terms of the following:
  (A) Nearest public intersection.
  (B) Quarter section, section, township, and range of the approximate center of the construction project.
  (C) If the information requested by clause (B) is not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.

(e) Units shall notify the commissioner of all sanitary sewer construction permits that the unit has issued by submitting to the department, on the effective date of the permit, a copy of each issued permit. Each submission ~~shall~~ **must** contain the following information for each issued permit:

(1) Project name with project number and approval number, if different from the project number.
(2) Identification of the professional engineer and engineering firm, if applicable, who designed the project, plans, and specifications.
(3) The county of the construction project.
(4) The location of the construction project in terms of the following:
  (A) Nearest public intersection.
  (B) Quarter section, section, township, and range of the approximate center of the construction project.
  (C) If the information requested by clause (B) is not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.
(5) Date of issuance and effective date of the permit.
(6) Average flows in gallons per day allotted to the sanitary sewer project and determined using the values for flow allotment per connection type according to Bulletin SE 13, **1988,** "On-Site Water Supply and Wastewater Disposal for Public and Commercial Establishments"*.
(7) Project description giving length and type of sewer.
(8) The number and type of sewer connections requested.
(9) Description of any lift stations included in the project.

(10) A project site map.

~~*The Clean Water Act in effect on January 1, 1989, and amended on December 16, 1996, may be found at 33 U.S.C. 1251 to 33 U.S.C. 1387 and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

***This document is incorporated by reference. Copies of this document may be obtained from the Indiana State Board of Health, 1330 West Michigan Street, P.O. Box 1964, Indianapolis, IN 46206, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-2.1-3; filed May 17, 1999, 12:11 p.m.: 22 IR 3084; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Apr 10, 2006, 2:46 p.m.: 29 IR 2547; readopted filed Nov 21, 2007, 1:19 p.m.: 20071219-IR-327070555BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 15. 327 IAC 3-6-8 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-8 Sanitary sewer materials

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 8. (a) All piping, accessories, and other materials in a sanitary sewer ~~shall~~ **must** conform to the following applicable standards:

(1) For ductile-iron and fittings, the following standards apply:
(A) American National Standard C104/A21.4-95* for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
(B) American National Standard C105/A21.5-93* for Polyethylene Encasement for Ductile-Iron Pipe Systems.
(C) American National Standard C110/A21.10-93* for Ductile-Iron and Gray-Iron Fittings, 3 In. through 48 In. (75 mm through 1,200 mm), for Water and Other Liquids.
(D) American National Standard C111/A21.50-90* for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
(E) American National Standard C115/A21.15-94* for Flanged Ductile-Iron Pipe or Gray-Iron Threaded Flanges.
(F) American National Standard C150/A21.50-91* for the Thickness Design of Ductile-Iron Pipe.
(G) American National Standard C151/A21.51-91* for Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
(H) American National Standard C153/A-21.53-94* for Ductile-Iron Compact Fittings, 3 In. through 24 In. (76 mm through 610 mm) and 54 In. through 64 In. (1,400 mm through 1,600 mm), for Water Service.

(2) For clay pipe used in gravity sewers, the Vitrified Clay Pipe (VCP) Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated, ASTM C700-96** ~~shall apply.~~ **applies.**

(3) For concrete pipe used in gravity sewers, the following standards apply:
(A) Concrete Pipe (CP), ASTM C14-95**, Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
(B) Reinforced Concrete Pipe (RCP), ASTM C76-95a**, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

(4) For asbestos-cement pipe, the following standards apply:
(A) AWWA C400-93*** Standard for Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.
(B) AWWA C401-93*** Standard for the Selection of Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.
(C) AWWA C402-89*** Standard for Asbestos-Cement Transmission Pipe, 18 In. through 42 In. (450 mm through 1,050 mm), for Potable Water and Other Liquids.
(D) AWWA C403-89*** Standard for the Selection of Asbestos-Cement Transmission and Feeder Main Pipe, Sizes 18 In. through 42 In. (450 mm through 1,050 mm).

(5) For plastic pipe used in gravity sewers, the following standards apply:

(A) ASTM D1785-96b**, Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
(B) ASTM D2680-95a**, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly Vinyl Chloride (PVC) Composite Sewer Piping.
(C) ASTM D3034-97**, Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings.
(D) ASTM F679-95**, Standard Specification for Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
(E) ASTM F794-97**, Standard Specification for Poly Vinyl Chloride (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
(F) ASTM F894-95**, Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.
(G) ASTM F949-96a**, Standard Specification for Poly Vinyl Chloride (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings.
(H) AWWA C900-89***, Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 In. for Water Distribution (includes addendum C900a-92).
(I) AWWA C905-88***, Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. through 36 In.

(6) For plastic pipe used in force mains, the following standards apply:
(A) ASTM D2241-96b**, Standard Specification for Poly Vinyl Chloride (PVC) Pressure-Rated Pipe, (SDR21, greater than 4 inch diameter).
(B) ASTM D2241-96b**, Standard Specification for Poly Vinyl Chloride (PVC) Pressure-Rated Pipe, (SDR26, less than 4 inch diameter).
(C) ASTM F714-97**, Standard Specification for Polyethylene (PE) Plastic Pipe (SDR 21) Based on Outside Diameter.
(D) AWWA C900-89***, Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 In. for Water Distribution (includes addendum C900a-92).
(E) AWWA C905-88***, Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. through 36 In.

(b) Piping and accessories previously used exclusively for sanitary sewers or water mains may be reused if:
(1) the piping or accessories comply with the requirements of subsection (a); and
(2) the piping or accessories have been restored to their original condition.

(c) All connections between pipes ~~shall~~ **must** have mechanical joints or slip-on joints with rubber gaskets with the exception of polyethylene (PE) pipes that may be thermojointed by a person who is a manufacturer's certified thermojointer.

(d) Sanitary sewers constructed with polyvinyl chloride (PVC) and installed under existing or proposed roadways and railroads ~~shall~~ **must** be cased in conformance with AWWA Standard C900-89***, Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 In. for Water Distribution, Appendix A, or AWWA Standard C905-88***, Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. through 36 In., Appendix A.

(e) Sanitary sewers that are cased ~~shall~~ **must** conform to AWWA Standard C600-93***, Section 6, Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.

(f) Force mains ~~shall~~ **must** be identified ~~as such~~ when using water main materials.

(g) The minimum diameter of sanitary sewers ~~shall~~ **must** be sized so that the peak daily flow, in accordance with section 11 of this rule, that will be collected from the proposed collection system that is the subject of the application, plans, and specifications:
(1) will not cause overflowing or bypassing in the same subject proposed collection system from locations other than NPDES authorized discharge points; and
(2) will be in accordance with the following:
(A) Gravity sewers ~~shall~~ **must** not be less than eight (8) inches in diameter.
(B) Force mains ~~shall~~ **must** not be less than four (4) inches in diameter.

***These documents are incorporated by reference. Copies may be obtained from ANSI Headquarters, 1899 L Street, NW, 11th Floor, Washington, D.C. 20036, www.ansi.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

****These documents are incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

*****These documents are incorporated by reference. Copies may be obtained from American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235, www.awwa.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North,100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-8; filed May 17, 1999, 12:11 p.m.: 22 IR 3088; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 16. 327 IAC 3-6-9 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-9 Separation of collection systems from water mains and drinking water wells

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 9. (a) Sanitary sewers ~~shall~~ **must** not be located within ten (10) feet of any existing or proposed water mains, when measured horizontally from the outside edge of the sanitary sewer to the outside edge of any existing and proposed water mains, unless the sanitary sewers and the water main comply with the following:

(1) The sanitary sewer and water main must cross with the sanitary sewer and water main separated by a minimum of eighteen (18) inches measured vertically from the outside edge of the sanitary sewer to the outside edge of the water main.

(2) The crossing specified in subdivision (1) must be at a minimum angle of forty-five (45) degrees measured from the center lines of the sanitary sewer and water main.

(3) The conditions specified in subdivisions (1) and (2) must be maintained for a minimum distance of ten (10) feet from either side of the sanitary sewer as measured from the outside edge of the sanitary sewer to the outside edge of the water main.

(b) A shorter separation distance than that specified in subsection (a) is allowed if the following is conducted within the separation distances specified in subsection (a):

(1) The sanitary sewers meet all water main pressure testing requirements as described in 327 IAC 8-3.2-17(a).

(2) The sanitary sewer ~~shall~~ **must** be constructed of materials in conformance with one (1) of the following:

(A) 327 IAC 8-3.2-8.

(B) Section 8(a)(1) of this rule.

(C) ASTM D2241-96b*, Standard Specification for Poly Vinyl Chloride (PVC) Pressure-Rated Pipe, and having a SDR (standard dimension ratio) of 21.

(3) The sanitary sewers and water mains are not in contact.

(4) Any sanitary sewer joints are a compression type joint that are placed equidistantly from the water main.

(5) The sanitary sewer and water main are laid on separate trench shelves.

(c) No sanitary sewer manhole ~~shall~~ **must** be within eight (8) feet of a water main as measured from the outside edge of the sanitary sewer manhole to the outside edge of the water main.

(d) Sanitary sewers ~~shall~~ **must** not be within the isolation area of a public water system drinking water well unless in accordance with the following:

(1) The sanitary sewers meet all water main pressure testing requirements as described in 327 IAC 8-3.2-17(a).

(2) The sanitary sewer ~~shall~~ **must** be constructed of materials in conformance with one (1) of the following:
(A) 327 IAC 8-3.2-8.
(B) Section 8(a)(1) of this rule.
(C) ASTM D2241-96b*, Standard Specification for Poly Vinyl Chloride (PVC) Pressure-Rated Pipe, and having a SDR ratio of 21.
(3) The sanitary sewers are no closer than fifty (50) feet from the public water system drinking water well as measured from the outside edge of the sanitary sewer to the outside edge of the well casing.

(e) Sanitary lift stations ~~shall~~ **must** not be located within ten (10) feet measured horizontally from the outside edge of the lift station to the outside edge of any existing and proposed water mains.

(f) The following ~~shall~~ **must** not be located within the isolation area of a public water system drinking water well:
(1) Sanitary lift stations.
(2) Sanitary sewer manholes.

***This document is incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-9; filed May 17, 1999, 12:11 p.m.: 22 IR 3089; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 17. 327 IAC 3-6-10 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-10 Collection systems near surface water bodies

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 10. (a) Sanitary sewers and lift stations ~~shall~~ **must** be separated from existing or proposed water bodies by ten (10) feet horizontally measured from the outside edge of the sanitary sewer to the edge of the water line at normal pool elevation.

(b) Sanitary sewers located above surface water bodies ~~shall~~ **must** be in accordance with the following:
(1) Supported and anchored at each joint.
(2) Protected from damage and freezing with any of the following:
(A) Insulation.
(B) Increased slope.
(3) Accessible for repair or replacement.

(c) Sanitary sewers located under surface water bodies ~~shall~~ **must** be constructed with ductile iron pipe or constructed of PVC having a SDR ratio of 21 and in conformance with ASTM D2241-96b*, Standard Specification for Poly Vinyl Chloride (PVC) Pressure-Rated Pipe, with mechanical joints rated to two hundred (200) pounds per square inch and backfilled with a stone, gravel, or coarse aggregate and covered in accordance with the following:
(1) Below the channel pavement if the channel is paved.
(2) Twelve (12) inches of cover ~~shall~~ **must** be provided where the sewer is located in rock.
(3) Thirty-six (36) inches of cover ~~shall~~ **must** be provided in all other areas.

(d) Sanitary sewers, other than inverted siphons in conformance with section 17 of this rule, that cross streams or rivers ~~shall~~ **must** be in accordance with the following:
(1) Cross perpendicular to the stream flow.
(2) Have no change in grade.

(e) Sanitary lift stations ~~shall~~ **must** be capable of remaining fully operational and accessible during a

twenty-five (25) year flood.

(f) Sanitary lift stations, structures, and electrical and mechanical equipment ~~shall~~ **must** be protected from physical damage potentially caused by a one hundred (100) year flood.

***This document is incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-10; filed May 17, 1999, 12:11 p.m.: 22 IR 3090; errata filed May 20, 1999, 6:36 p.m.: 22 IR 3108; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 18. 327 IAC 3-6-13 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-13 Force main requirements

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 13. In addition to the force main requirements specified throughout this rule, the following apply:
(1) Force mains ~~shall~~ **must** be sized to provide a cleansing velocity of at least two (2) feet per second throughout the length of the sewer at the design pumping rate.
(2) Force main pipe and joint materials ~~shall~~ **must** be equivalent to water main strength at design conditions.
(3) Air relief valves or other air relief devices ~~shall~~ **must** be installed at every intermediate apex point where air may accumulate in the force main.
(4) Each air relief valve that exhausts above ground must be equipped with an exhaust pipe extending to a downward facing elbow covered with a corrosion-resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above ground level.
(5) Air relief valves ~~shall~~ **must** be selected in accordance with the following:
(A) Automatic air relief valves ~~shall~~ **must** not be used in areas:
(i) within the one hundred (100) year flood plain; or
(ii) where flooding may occur, such as in:
(AA) a pit;
(BB) a chamber; or
(CC) a manhole;
unless the automatic air relief valve is equipped with a downward facing exhaust pipe covered with a corrosion-resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above the ground surface and above the one hundred (100) year flood elevation.
(B) Manually operated air relief valves ~~shall~~ **must** be used in areas:
(i) within the one hundred (100) year flood plain; and
(ii) where flooding may occur, such as in:
(AA) a pit;
(BB) a chamber; or
(CC) a manhole.
(6) The following reaction devices installed to prevent movement in pipes and fittings, of any material type, ~~shall~~ **must** be designed in conformance with Section 3.8 of AWWA Standard C600-93*, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances:
(A) Blocking.
(B) Tie rods.
(C) Joints.

***This document is incorporated by reference. Copies may be obtained from American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235, www.awwa.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-13; filed May 17, 1999, 12:11 p.m.: 22 IR 3093; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA;

readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 19. 327 IAC 3-6-16 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-16 Manholes

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 16. (a) Manholes ~~shall~~ **must:**
(1) be constructed of:
~~(1)~~ **(A)** precast concrete that has lift holes; or
~~(2)~~ **(B)** poured-in-place concrete; and ~~shall~~
(2) have grade adjustment rings sealed with nonshrinking mortar in conformance with ASTM C478-96*, Standard Specification for Precast Reinforced Concrete Manhole Sections.

(b) Inlet or outlet pipes ~~shall~~ **must** be joined to the manhole with a gasketed, flexible, and watertight connection.

(c) Manholes ~~shall~~ **must** have a minimum diameter of forty-eight (48) inches and a minimum access diameter of twenty-two (22) inches.

(d) Watertight manhole covers ~~shall~~ **must** be used in any area where the manhole tops are:
(1) subject to flooding by street run-off or high water;
(2) in a floodway; or
(3) in a floodplain.

(e) Manholes ~~shall~~ **must** be located as follows:
(1) At all end points of sanitary sewers.
(2) Wherever changes occur in grade, size, or alignment of the sanitary sewer.
(3) At all intersections of sanitary sewers.
(4) With separation distances between any two (2) manholes not to be greater than the following:
(A) Four hundred (400) feet for sanitary sewers less than fifteen (15) inches in diameter.
(B) Five hundred (500) feet for sanitary sewers equal to or greater than fifteen (15) inches and less than thirty (30) inches in diameter.
(C) Six hundred (600) feet for sanitary sewers equal to or greater than thirty (30) inches in diameter.

(f) All upstream sanitary sewers less than twenty-four (24) inches from the manhole invert ~~shall~~ **must** be filleted to prevent solids deposition. Drop pipes ~~shall~~ **must** be provided for incoming sanitary sewers entering a manhole at an elevation of twenty-four (24) inches or more above the manhole invert and ~~shall~~ **must** be in accordance with the following:
(1) Drop pipe connections on the inside of manholes ~~shall~~ **must** be secured to the interior wall of the manhole and provide access for cleaning.
(2) Drop pipe connections on the outside of manholes ~~shall~~ **must** be encased in concrete.

(g) A flow channel that conforms to the shape of the connecting sanitary sewer ~~shall~~ **must** be made through the bottom surface of the manhole. The channel walls ~~shall~~ **must** be formed or shaped to the full height of the crown of the outlet sewer.

(h) A bench ~~shall:~~ **must:**
(1) be provided on each side of any flow channel if the pipe diameter is less than the manhole diameter;
(2) have a surface slope of no less than four percent (4%); and
(3) receive no discharge onto the surface of the bench from a:
(A) lateral;
(B) service connection; or
(C) drop manhole pipe.

(i) The inlet to a manhole from a force main ~~shall~~ **must** enter the manhole at an elevation less than twenty-four (24) inches above the flow line of the receiving manhole.

(j) Manholes ~~shall~~ **must** be air tested in accordance with ASTM C1244-93*, Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

***These documents are incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-16; filed May 17, 1999, 12:11 p.m.: 22 IR 3093; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 20. 327 IAC 3-6-18 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-18 Installation

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 18. (a) All gravity sewers, force mains, and the accessories to either ~~shall~~ **must** be installed in accordance with ~~the~~ one **(1)** of the following:

(1) ASTM C12-95*, Standard Practice for Installing Vitrified Clay Pipe Lines.

(2) ASTM D2321-89*, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

(3) AWWA standard C600-93**, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.

(4) AWWA standard C602-89**, AWWA Standard for Cement-Mortar Lining of Water Pipelines–4 In. (100 mm) and Larger–In Place.

(5) AWWA standard C603-90**, AWWA Standard for Installation of Asbestos–Cement Pressure Pipe.

(6) AWWA standard C605-94**, AWWA Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.

(7) AWWA standard C606-87**, AWWA Standard for Grooved and Shouldered Joints.

(b) If an ASTM or AWWA standard as allowed by subsection (a) is not applicable for the particular installation, the manufacturer's recommended installation procedure ~~shall~~ **must** be followed.

(c) Continuous and uniform bedding ~~shall~~ **must** be provided in the trench for all buried pipe. Backfill material ~~shall~~ **must** be tamped in layers around the pipe and to a height above the pipe capable to support and protect the pipe.

(d) All ledge rock, boulders, and stones unable to pass through an opening of two (2) inches that are found in the trench within four (4) inches of the outside edge of all sewer pipe ~~shall~~ **must** be removed.

(e) Sanitary sewers ~~shall~~ **must** be covered with at least thirty-six (36) inches of earthen cover measured from the top of **the** pipe to the proposed finish grade.

(f) Bedding classes A, B, C, or crushed stone as described in ASTM C12-95*, Standard Practice for Installing Vitrified Clay Pipe Lines, ~~shall~~ **must** be used and compacted for all rigid pipe installation.

(g) Embedment materials for bedding, haunching, and initial backfill, Class I, II, or III as described in ASTM D2321-89*, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, ~~shall~~ **must** be used and compacted for all flexible pipe installation.

(h) Final backfill ~~shall:~~ **must:**
(1) be placed in a manner that will not disturb the sanitary sewer pipe; and
(2) not consist of the following:
(A) Debris.
(B) Organic material.
(C) Frozen material.
(D) Unstable materials.
(E) Boulders or stones unable to pass through an opening of two (2) inches that are placed within two (2) feet of the sewer pipe as measured radially from the outside edge of the sewer.

***These documents are incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

****These documents are incorporated by reference. Copies may be obtained from American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235, www.awwa.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North,100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-18; filed May 17, 1999, 12:11 p.m.: 22 IR 3094; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 21. 327 IAC 3-6-19 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-19 Deflection and leakage tests

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 19. (a) A deflection test ~~shall~~ **must** be performed on each flexible pipe following the elapse of thirty (30) days after the placement of the final backfill.

(b) ~~No~~ **The** pipe ~~shall~~ **must not** exceed a deflection of five percent (5%) or greater.

(c) The diameter of the rigid ball or mandrel used for a deflection test ~~shall~~ **must** be no less than ninety-five percent (95%) of the base inside diameter of the pipe to be tested, dependent on what is specified in the corresponding ASTM standard. The test ~~shall~~ **must** not be performed with the aid of a mechanical pulling device.

(d) All gravity sewer pipe ~~shall~~ **must** be tested using one (1) of the following leakage test types:
(1) A hydrostatic test ~~shall~~ **must** be performed with a minimum of two (2) feet of positive head. The rate of exfiltration or infiltration ~~shall~~ **must** not exceed two hundred (200) gallons per inch of pipe diameter per linear mile per day.
(2) An air test ~~shall~~ **must** conform to one (1) of the following methods:
(A) ASTM C828-90*, Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines, for clay pipe.
(B) ASTM C 924-89*, Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method, for concrete pipe.
(C) ASTM F1417-92*, Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air, for plastic pipe.

(e) All force mains ~~shall~~ **must** be pressure and leak tested in accordance with one (1) of the following methods:
(1) AWWA standard C600-93**, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.
(2) AWWA standard C602-89**, AWWA Standard for Cement-Mortar Lining of Water Pipelines-4 In. (100 mm) and Larger-In Place.

(3) AWWA standard C603-90**, AWWA Standard for Installation of Asbestos–Cement Pressure Pipe.
(4) AWWA standard C605-94**, AWWA Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
(5) AWWA standard C606-87**, AWWA Standard for Grooved and Shouldered Joints.

If an AWWA standard is not available for the particular installation, the installation procedure recommended by the manufacturer ~~shall~~ **must** be followed.

***These documents are incorporated by reference. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

****These documents are incorporated by reference. Copies may be obtained from American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235, www.awwa.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-19; filed May 17, 1999, 12:11 p.m.: 22 IR 3095; errata filed Dec 1, 2000, 5:25 p.m.: 24 IR 1033; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 22. 327 IAC 3-6-24 IS AMENDED TO READ AS FOLLOWS:

327 IAC 3-6-24 Electrical requirements

Authority: IC 13-13-5; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2
Affected: IC 13-11-2; IC 13-15; IC 13-18

Sec. 24. The National Electrical Code, **2017, NFPA 70*** requirements for Class I, Group D, Division 1 locations ~~shall~~ govern electrical systems and components used in wet wells or in enclosed or partially-enclosed areas where concentrations of flammable gases or vapors may be present. The components may include ~~such~~ equipment **such** as motors, lights, cables, conduits, switch boxes, and control circuits, and all ~~shall~~ **must** comply with the following:

(1) Be protected against corrosive conditions.
(2) Each flexible cable ~~shall~~ **must** be provided with a watertight seal and separate strain relief.
(3) The main power feed to all lift stations ~~shall~~ **must** be equipped with a fused disconnect switch located aboveground.
(4) The equipment, if not housed, ~~shall~~ **must** meet the requirements of NEMA 3R or 4, **in accordance with NEMA 250-2014, Enclosures for Electrical Equipment (1,000 Volts Maximum)**.**

***This document is incorporated by reference. Copies may be obtained from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169, www.nfpa.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

****This document is incorporated by reference. Copies may be obtained from the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Arlington, VA 22209, www.nema.org, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 3-6-24; filed May 17, 1999, 12:11 p.m.: 22 IR 3096; readopted filed Apr 11, 2005, 2:45 p.m.: 28 IR 2470; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 23. 327 IAC 5-1-1 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-1-1 Purpose

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-18-3

Sec. 1. This article prescribes policies, procedures, and technical criteria for the following programs: ~~of the water pollution control board:~~

(1) The issuance of discharge permits under the National Pollutant Discharge Elimination System (NPDES).

(2) The implementation of a program for the pretreatment of industrial wastewater to be discharged into municipal sewage treatment facilities.

The provisions of this rule are generally applicable to all other rules of this article.

(Water Pollution Control Division; 327 IAC 5-1-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 614; filed Feb 26, 1993, 5:00 p.m.: 16 IR 1734; filed Nov 13, 1995, 5:00 p.m.: 19 IR 660; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; readopted filed Jul 29, 2013, 9:21 a.m.: 20130828-IR-327130176BFA)

SECTION 24. 327 IAC 5-2-1.5 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-2-1.5 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3
Affected: IC 13-11-2; IC 13-18-3-15; IC 13-18-4

Sec. 1.5. (a) The following are incorporated by reference:

~~Part~~	~~Title of Part~~	~~Revision Date~~
~~40 CFR 125~~	~~Criteria and Standards for the National Pollutant Discharge Elimination System~~	~~July 1, 2011~~
~~40 CFR 130~~	~~Water Quality Planning and Management~~	~~July 1, 2011~~
~~40 CFR 133~~	~~Secondary Treatment Regulation~~	~~July 1, 2011~~
~~40 CFR 136~~	~~Guidelines Establishing Test Procedures for the Analysis of Pollutants~~	~~July 1, 2011~~
~~40 CFR 403~~	~~General Pre-Treatment Regulations for Existing and New Sources of Pollution~~	~~July 1, 2009~~
~~40 CFR 405~~	~~Dairy Products Processing~~	~~July 1, 2009~~
~~40 CFR 406~~	~~Grain Mills Point Source Category~~	~~July 1, 2009~~
~~40 CFR 407~~	~~Canned and Preserved Fruits and Vegetables Processing~~	~~July 1, 2009~~
~~40 CFR 408~~	~~Canned and Preserved Seafood (Seafood Processing)~~	~~July 1, 2009~~
~~40 CFR 411~~	~~Cement Manufacturing~~	~~July 1, 2009~~
~~40 CFR 412~~	~~Concentrated Animal Feeding Operations (CAFO) Point Source Category~~	~~July 1, 2009~~
~~40 CFR 413~~	~~Electroplating Point Source Category~~	~~July 1, 2009~~
~~40 CFR 414~~	~~Organic Chemicals, Plastics and Synthetic Fibers~~	~~July 1, 2009~~
~~40 CFR 415~~	~~Inorganic Chemicals Manufacturing Point Source Category~~	~~July 1, 2009~~
~~40 CFR 417~~	~~Soap and Detergent Manufacturing Point Source Category~~	~~July 1, 2009~~
~~40 CFR 418~~	~~Fertilizer Manufacturing Point Source Category~~	~~July 1, 2009~~
~~40 CFR 419~~	~~Petroleum Refining Point Source Category~~	~~July 1, 2009~~
~~40 CFR 420~~	~~Iron and Steel Manufacturing Point Source Category~~	~~July 1, 2009~~
~~40 CFR 421~~	~~Nonferrous Metals Manufacturing Point Source Category~~	~~July 1, 2009~~
~~40 CFR 423~~	~~Steam Electric Power Generating Point Source Category~~	~~July 1, 2009~~
~~40 CFR 424~~	~~Ferroalloy Manufacturing~~	~~July 1, 2009~~
~~40 CFR 425~~	~~Leather Tanning and Finishing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 426~~	~~Glass Manufacturing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 427~~	~~Asbestos Manufacturing~~	~~July 1, 2011~~
~~40 CFR 428~~	~~Rubber Manufacturing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 429~~	~~Timber Products Processing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 430~~	~~Pulp, Paper and Paperboard Point Source Category~~	~~July 1, 2011~~
~~40 CFR 432~~	~~Meat and Poultry Products~~	~~July 1, 2011~~
~~40 CFR 433~~	~~Metal Finishing Point Source Category~~	~~July 1, 2011~~

~~40 CFR 434~~	~~Coal Mining Point Source Category BPT, BAT, BCT Limitations and New Source Performance Standards~~	~~July 1, 2011~~
~~40 CFR 435~~	~~Oil and Gas Extraction Point Source Category~~	~~July 1, 2011~~
~~40 CFR 437~~	~~Centralized Waste Treatment Point Source Category~~	~~July 1, 2011~~
~~40 CFR 439~~	~~Pharmaceutical Manufacturing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 442~~	~~Transportation Equipment Cleaning Point Source Category~~	~~July 1, 2011~~
~~40 CFR 443~~	~~Effluent Limitations Guidelines for Existing Sources and Standards of Performance and Pretreatment Standards for New Sources for the Paving and Roofing Materials (Tars and Asphalt) Point Source Category~~	~~July 1, 2011~~
~~40 CFR 444~~	~~Waste Combustors Point Source Category~~	~~July 1, 2011~~
~~40 CFR 445~~	~~Landfills~~	~~July 1, 2011~~
~~40 CFR 446~~	~~Paint Formulating Point Source Category~~	~~July 1, 2011~~
~~40 CFR 447~~	~~Ink Formulating Point Source Category~~	~~July 1, 2011~~
~~40 CFR 451~~	~~Concentrated Aquatic Animal Production (Aquaculture)~~	~~July 1, 2011~~
~~40 CFR 454~~	~~Gum and Wood Chemicals~~	~~July 1, 2011~~
~~40 CFR 455~~	~~Pesticide Chemicals~~	~~July 1, 2011~~
~~40 CFR 457~~	~~Explosives Manufacturing~~	~~July 1, 2011~~
~~40 CFR 458~~	~~Carbon Black Manufacturing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 460~~	~~Hospitals~~	~~July 1, 2011~~
~~40 CFR 461~~	~~Battery Manufacturing Point Source Category~~	~~July 1, 2011~~
~~40 CFR 464~~	~~Metal Molding and Casting Point Source Category~~	~~July 1, 2011~~
~~40 CFR 465~~	~~Coil Coating Point Source Category~~	~~July 1, 2011~~
~~40 CFR 466~~	~~Porcelain Enameling Point Source Category~~	~~July 1, 2011~~
~~40 CFR 467~~	~~Aluminum Forming Point Source Category~~	~~July 1, 2011~~
~~40 CFR 468~~	~~Copper Forming Point Source Category~~	~~July 1, 2011~~
~~40 CFR 469~~	~~Electrical and Electronic Components Point Source Category~~	~~July 1, 2011~~
~~40 CFR 471~~	~~Nonferrous Metals Forming and Metal Powders Point Source Category~~	~~July 1, 2011~~
~~40 CFR 501~~	~~State Sludge Management Program Regulations~~	~~July 1, 2011~~
~~40 CFR 503~~	~~Standards for the Use or Disposal of Sewage Sludge~~	~~July 1, 2011~~

(1) 40 CFR 125*, Criteria and Standards for the National Pollutant Discharge Elimination System.
(2) 40 CFR 130*, Water Quality Planning and Management.
(3) 40 CFR 133*, Secondary Treatment Regulation.
(4) 40 CFR 136*, Guidelines Establishing Test Procedures for the Analysis of Pollutants.
(5) 40 CFR 403*, General Pre-Treatment Regulations for Existing and New Sources of Pollution.
(6) 40 CFR 405*, Dairy Products Processing.
(7) 40 CFR 406*, Grain Mills.
(8) 40 CFR 407*, Canned and Preserved Fruits and Vegetables Processing.
(9) 40 CFR 408*, Canned and Preserved Seafood (Seafood Processing).
(10) 40 CFR 409*, Sugar Processing.
(11) 40 CFR 410*, Textile Mills.
(12) 40 CFR 411*, Cement Manufacturing.
(13) 40 CFR 412*, Concentrated Animal Feeding Operations (CAFO).
(14) 40 CFR 413*, Electroplating.
(15) 40 CFR 414*, Organic Chemicals, Plastics and Synthetic Fibers.
(16) 40 CFR 415*, Inorganic Chemicals Manufacturing.
(17) 40 CFR 417*, Soap and Detergent Manufacturing.
(18) 40 CFR 418*, Fertilizer Manufacturing.
(19) 40 CFR 419*, Petroleum Refining.
(20) 40 CFR 420*, Iron and Steel Manufacturing.
(21) 40 CFR 421*, Nonferrous Metals Manufacturing.
(22) 40 CFR 422*, Phosphate Manufacturing.
(23) 40 CFR 423*, Steam Electric Power Generating, as amended by 82 FR 43500.
(24) 40 CFR 424*, Ferroalloy Manufacturing.
(25) 40 CFR 425*, Leather Tanning and Finishing.
(26) 40 CFR 426*, Glass Manufacturing.
(27) 40 CFR 427*, Asbestos Manufacturing.

(28) 40 CFR 428*, Rubber Manufacturing.
(29) 40 CFR 429*, Timber Products Processing.
(30) 40 CFR 430*, Pulp, Paper and Paperboard.
(31) 40 CFR 432*, Meat and Poultry Products.
(32) 40 CFR 433*, Metal Finishing.
(33) 40 CFR 434*, Coal Mining Point Source Category BPT, BAT, BCT Limitations and New Source Performance Standards.
(34) 40 CFR 435*, Oil and Gas Extraction.
(35) 40 CFR 436*, Mineral Mining and Processing.
(36) 40 CFR 437*, Centralized Waste Treatment.
(37) 40 CFR 438*, Metal Products and Machinery.
(38) 40 CFR 439*, Pharmaceutical Manufacturing.
(39) 40 CFR 440*, Ore Mining and Dressing.
(40) 40 CFR 442*, Transportation Equipment Cleaning.
(41) 40 CFR 443*, Effluent Limitations Guidelines for Existing Sources and Standards of Performance and Pretreatment Standards for New Sources for the Paving and Roofing Materials (Tars and Asphalt).
(42) 40 CFR 444*, Waste Combustors.
(43) 40 CFR 445*, Landfills.
(44) 40 CFR 446*, Paint Formulating.
(45) 40 CFR 447*, Ink Formulating.
(46) 40 CFR 449*, Airport Deicing.
(47) 40 CFR 450*, Construction and Development.
(48) 40 CFR 451*, Concentrated Aquatic Animal Production (Aquaculture).
(49) 40 CFR 454*, Gum and Wood Chemicals Manufacturing.
(50) 40 CFR 455*, Pesticide Chemicals.
(51) 40 CFR 457*, Explosives Manufacturing.
(52) 40 CFR 458*, Carbon Black Manufacturing.
(53) 40 CFR 459*, Photographic.
(54) 40 CFR 460*, Hospitals.
(55) 40 CFR 461*, Battery Manufacturing.
(56) 40 CFR 463*, Plastics Molding and Forming.
(57) 40 CFR 464*, Metal Molding and Casting.
(58) 40 CFR 465*, Coil Coating.
(59) 40 CFR 466*, Porcelain Enameling.
(60) 40 CFR 467*, Aluminum Forming.
(61) 40 CFR 468*, Copper Forming.
(62) 40 CFR 469*, Electrical and Electronic Components.
(63) 40 CFR 471*, Nonferrous Metals Forming and Metal Powders.
(64) 40 CFR 501*, State Sludge Management Program Regulations.
(65) 40 CFR 503*, Standards for the Use or Disposal of Sewage Sludge.

(b) Federal regulations that have been incorporated by reference do not include any later amendments than those specified in this section.

~~(c) The Code of Federal Regulations is available:~~
~~(1) electronically at http://www.gpo.gov/fdsys/; and~~
~~(2) in paper copies from the U.S. Government Printing Office, P.O. Box 979050, St. Louis, MO 63197-9000 or online at http://bookstore.gpo.gov/.~~
~~The incorporated materials are available for public review at the Department of Environmental Management, Office of Water Quality, Permits Branch, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

~~(d)~~ **(c)** Where exceptions to materials incorporated by reference are necessary, these exceptions will be noted in section 1.8 of this rule or otherwise identified in this article.

~~(e)~~ **(d)** The incorporation of federal regulations as state ~~rules~~ **rule** does not negate the requirement to comply with federal provisions that may be effective in Indiana **but** that are not incorporated in this article or are retained as federal authority.

***These documents are incorporated by reference. Copies may be obtained from the Government Publishing Office, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 5-2-1.5; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1421; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3378; filed Feb 14, 2005, 10:05 a.m.: 28 IR 2097; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936; filed Oct 9, 2015, 4:07 p.m.: 20151104-IR-327100659FRA)

SECTION 25. 327 IAC 5-2-1.6 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-2-1.6 Consistency with federal references

Authority: IC 13-14-8; IC 13-18-10-4
Affected: IC 13-11-2; IC 13-14-12; IC 13-18; IC 13-30

Sec. 1.6. The department shall issue NPDES permits consistent with the following:

~~Part~~	~~Title of Part~~	~~Revision Date~~
~~40 CFR 122~~	~~EPA Administered Permit Programs: The National Pollutant Discharge Elimination System~~	~~July 1, 2011~~
~~40 CFR 123~~	~~State Program Requirements~~	~~July 1, 2011~~
~~40 CFR 124~~	~~Procedures for Decisionmaking~~	~~July 1, 2011~~
~~40 CFR 131~~	~~Water Quality Standards~~	~~July 1, 2011~~

(1) 40 CFR 122*, EPA Administered Permit Programs: The National Pollutant Discharge Eliminiation System.
(2) 40 CFR 123*, State Program Requirements.
(3) 40 CFR 124*, Procedures for Decisionmaking.
(4) 40 CFR 131*, Water Quality Standards.

***These documents are incorporated by reference. Copies may be obtained from the Government Publishing Office, www.gpo.gov, or are available for review at the Indiana Department of Environmental Management, Office of Legal Counsel, Indiana Government Center North, 100 North Senate Avenue, Thirteenth Floor, Indianapolis, Indiana 46204.**

(Water Pollution Control Division; 327 IAC 5-2-1.6; filed Oct 9, 2015, 4:07 p.m.: 20151104-IR-327100659FRA)

SECTION 26. 327 IAC 5-2-10 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-2-10 Applicable limitations, standards, and conditions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-18-3-2.6
Affected: IC 13-11-2; IC 13-18-4

Sec. 10. (a) Each NPDES permit ~~shall~~ **must** provide for and ensure compliance with all applicable requirements of the Clean Water Act (CWA), regulations promulgated under the CWA, and state law. For the purposes of this section, an applicable requirement is a statutory or regulatory requirement that takes effect under state law before final administrative disposition of a permit. In addition to the requirements of sections 6, 8, 9, and 12 of this rule, permits ~~shall~~ **must** contain terms and conditions that ensure compliance with the following ~~requirements~~ as applicable:

(1) Effluent limitations and standards under Sections 301, 304, 307(a), 318, and 405 of the CWA.

(2) Standards of performance for new sources under Section 306 of the CWA and 40 CFR 122.44(a).

(3) In the case of a POTW, which primarily is designed and utilized for the treatment of wastewater from an industry of a particular class or category, ~~the~~ effluent limitations or standards that would apply under Section 301, 304, 306, 307, 318, or 405 of the CWA to the industry if it were a direct discharger. If the POTW receives sewage from domestic sources as well as industrial wastewater, the permit ~~shall~~ **must** include composite (or hybrid) effluent limitations comprising the effluent:

(A) limitations or standards applicable to the industrial wastewater, as specified in this subdivision; and

(B) limitations applicable to the domestic sewage under Sections 301 and 304 of the CWA.

~~Such~~ **The** composite limitations ~~will~~ **must** be cumulative for mass limitations and weighted in proportion to respective flows for concentration limitations.

(4) ~~Water quality standard based and other more stringent requirements.~~ Any effluent limitations or other requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under Sections 301, 304, 306, 307, 318, and 405 of the CWA where necessary to do the following:

(A) Achieve water quality standards established by the ~~water pollution control~~ board or by **U.S.** EPA in accordance with Sections 118 and 303 of the CWA. Numeric water quality-based effluent limitations ~~shall~~ **must** be established in accordance with sections 11.1 and ~~11.3~~ **11.4** through 11.6 of this rule.

(B) Attain or maintain a specified water quality through water quality related effluent limits established under Section 302 of the CWA.

(C) Incorporate, in accordance with Section 301(b)(1)(C) of the CWA, any more stringent limitations, treatment standards, or schedules of compliance requirements established under federal or state law or regulations, including those adopted under interstate agreements or compacts such as the Ohio River Valley Water Sanitation Commission (ORSANCO).

(D) Ensure consistency with the requirements of a water quality management plan approved by **U.S.** EPA under Section 208(b) of the CWA.

(E) Incorporate alternative effluent limitations or standards where warranted by fundamentally different factors under 327 IAC 5-6.

(5) The following requirements for toxic pollutant limitations:

(A) Limitations established under subdivision (1), (2), (3), or (4) to control pollutants meeting the criteria listed in clause (B). ~~Such~~ **The** limitations ~~shall~~ **must** be established in accordance with clause (C).

(B) Limitations must control all toxic pollutants that the:

(i) commissioner determines (based on information reported in a permit application or in a notification under section 9 of this rule or on other information) are or may be discharged at a level greater than the level that is allowed under the technology-based effluent limitations applicable to the permittee under the CWA (see 327 IAC 5-5-2(c)); or

(ii) discharger does or may use or manufacture as an intermediate or final product or byproduct; however, limitations are not required under this subdivision merely because the discharger does or may use or manufacture a toxic pollutant under research or laboratory conditions.

(C) The requirement that the limitations control the pollutants meeting the criteria of clause (B) ~~shall~~ **must** be satisfied by limitations on:

(i) those pollutants; or

(ii) other pollutants that, in the judgment of the commissioner, will ensure treatment of the pollutants specified under clause (B) to the levels required by the CWA.

(D) As used in this subdivision, "toxic pollutant" means:

(i) a pollutant listed as toxic under Section 307(a)(1) of the CWA; or

(ii) a pollutant or a combination of pollutants determined by the commissioner to have significant toxic characteristics when discharged into the waters of the state for organisms reasonably expected to be exposed to the pollutant or pollutants.

(6) **For** permits issued before the promulgation by the administrator of applicable effluent limitations and standards (including best management practices) under Sections 301, 304, 307, 318, and 405 of the CWA, ~~shall contain such~~ limitations and other conditions as the commissioner determines to be necessary to carry out those provisions of the CWA under 327 IAC 5-5-2(b) and Section 402(a)(1) of the CWA.

(7) Best management practices to control or abate the discharge of pollutants where:

(A) required under Section 304(e) of the CWA for the control of toxic and hazardous pollutants from ancillary industrial activities;

(B) numeric effluent limitations are infeasible; or

(C) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Examples of best management practices that may be appropriate under clause (B) include proper operation and maintenance criteria and sludge-handling requirements. Examples of best management practices that may be appropriate under clause (C) include the construction of sheds over material storage piles to prevent rainfall from leaching materials from these piles and creating a source of pollution, ditching and diversion of rainfall run-off to minimize or prevent contamination from a discharger's manufacturing operations, and the use of solid, absorbent materials for cleaning up leaks and drips as opposed to washing these materials down a floor drain creating additional sources of pollution.

(8) Twenty-four (24) hour reporting. Pollutants for which the permittee must report violations of maximum daily discharge limitations under section ~~8(10)(C)(iii)~~ **8(11)(C)(ii)** of this rule (twenty-four (24) hour reporting) ~~shall~~ **must** be listed ~~as such~~ in the permit. This list ~~shall~~ **must** include any:

(A) toxic pollutant or hazardous substance; or

(B) pollutant specifically identified as the method to control a toxic pollutant or hazardous substance.

(9) Any conditions that the Secretary of the Army considers necessary to ensure that navigation and anchorage will not be substantially impaired in accordance with 327 IAC 5-3-10(a).

(10) Additional conditions applicable to POTWs ~~shall be~~ **are** as follows:

(A) Any conditions imposed in grants made by the administrator to POTWs under Sections 201 and 204 of the CWA that are reasonably necessary for the achievement of effluent limitations required under Section 301 of the CWA.

(B) Requirements under Section 405 of the CWA governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.

(C) All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW that are subject to pretreatment standards under Section 307(b) and 307(c) of the CWA.

(D) All POTWs must provide adequate notice to the commissioner of the following:

(i) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Section 301 or 306 of the CWA if it were directly discharging those pollutants.

(ii) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where the change would:

(AA) render the source subject to pretreatment standards under Section 307(b) or 307(c) of the CWA; or

(BB) result in a modified application of the standards.

As used in this clause, "adequate notice" includes information on the quality and quantity of effluent introduced into the POTW and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(E) POTWs must develop and submit to the commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-13-1 in order to ~~assure~~ **ensure** compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the CWA. The pretreatment program ~~shall:~~ **must:**

(i) meet the criteria of 327 IAC 5-13-2(f); and

(ii) once approved, be incorporated into the POTW's permit.

(11) Antibacksliding requirements ~~shall be~~ **are** as follows:

(A) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under Section 304(b) of the CWA subsequent to the original issuance of the permit to contain effluent limitations that are less stringent than the comparable effluent limitations in the previous permit. In the case of effluent limitations established on the basis of Section 301(b)(1)(C), 303(d), or 303(e) of the CWA, a permit may not be renewed, reissued, or modified to contain effluent limitations that are less stringent than the comparable effluent limitations in the previous permit except in compliance with Section 303(d)(4) of the CWA.

(B) A permit, with respect to which clause (A) applies, may be renewed, reissued, or modified to contain less stringent effluent limitations applicable to a pollutant if:

(i) material and substantial alterations or additions to the permitted facility occurred after permit issuance that justify the application of a less stringent effluent limitation;

(ii) information is available that:

(AA) was not available at the time of permit issuance (other than revised regulations, guidance, or test methods); and

(BB) would have justified the application of a less stringent effluent limitation at the time of permit issuance;

or the commissioner determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under Section 402(a)(1)(B) of the CWA;

(iii) a less stringent effluent limitation is necessary because of events:

(AA) over which the permittee has no control; and

(BB) for which there is no reasonably available remedy;

(iv) the permittee has received a permit modification under Section 301(c), 301(g) through 301(i), 301(k), 301(n), or 316(a) of the CWA; or

(v) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but ~~shall~~ **must** not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Item (ii) shall not apply to any revised waste load allocations or any alternative grounds for translating water quality standards into effluent limitations, except where the cumulative effect of the revised allocations

results in a decrease in the amount of pollutants discharged into the concerned waters, and the revised allocations are not the result of a discharger eliminating or substantially reducing its discharge of pollutants due to complying with the requirements of the CWA or for reasons otherwise unrelated to water quality.

(C) In no event may a permit with respect to which clause (A) applies be renewed, reissued, or modified to contain an effluent limitation that is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may ~~such~~ a permit to discharge into waters be renewed, reissued, or modified to contain a less stringent effluent limitation if the implementation of the limitation would result in a violation of a water quality standard under Section 303 of the CWA, 327 IAC 2-1, or 327 IAC 2-1.5 applicable to the waters.

(12) For a POTW, any conditions expressly applicable to any user, as a limited co-permittee, that may be necessary in the permit issued to the treatment works to ensure compliance with applicable requirements under this subdivision. Alternatively, the commissioner may issue separate permits to the treatment works and to its users or may require a separate permit application from any user. The commissioner's decision to:

(A) issue a permit with no conditions applicable to any user;

(B) impose conditions on one (1) or more users;

(C) issue separate permits; or

(D) require separate applications;

and the basis for that decision, ~~shall~~ **must** be stated in the fact sheet for the draft permit for the treatment works.

(b) Notwithstanding the requirements of this section, where appropriate, NPDES permits for communities with approved LTCPs that are consistent with the federal CSO policy ~~shall~~ **must** contain schedules of compliance for meeting final water quality-based effluent limitations for CSOs, provided ~~any such~~ **the** permit:

(1) requires compliance with applicable standards and water quality-based effluent limitations as soon as possible in accordance with 40 CFR 122.47(a)(1) and in no event beyond the period specified in the approved LTCP for implementation of the LTCP;

(2) contains interim requirements, milestones, and final water quality-based effluent limitations and dates certain by which those requirements, milestones, and limitations will be met, even if these dates are beyond the term of the permit;

(3) complies in all other respects with the requirements of 40 CFR 122.47; and

(4) requires implementation of the approved LTCP.

(c) The department shall, where appropriate, and upon the request of the permittee, incorporate into the NPDES permit that contains water quality-based effluent limitations associated with CSOs a schedule of compliance provided that all the conditions in subsection (b) are met.

(Water Pollution Control Division; 327 IAC 5-2-10; filed Sep 24, 1987, 3:00 p.m.: 11 IR 623; filed Feb 26, 1993, 5:00 p.m.: 16 IR 1743; filed Jan 14, 1997, 12:00 p.m.: 20 IR 1426; errata filed Aug 11, 1997, 4:15 p.m.: 20 IR 3378; filed Sep 6, 2007, 12:25 p.m.: 20071003-IR-327050218FRA)

SECTION 27. 327 IAC 5-17-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-17-3 "Categorical pretreatment standards" defined

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 3. "Categorical pretreatment standards" means national pretreatment standards, specifying quantities or concentrations of pollutants or pollutant properties that may be discharged or introduced to a POTW by an existing or new industrial user in a specific industrial subcategory, that are established by **U.S.** EPA, under Section 307(b) or 307(c) of the Clean Water Act (33 U.S.C. 1317(b) or 33 U.S.C. 1317(c)) as separate regulations under the appropriate subpart of 40 CFR Chapter I, Subchapter N. **The categorical pretreatment standards are incorporated by reference at 327 IAC 5-2-1.5.**

(Water Pollution Control Division; 327 IAC 5-17-3; filed Oct 10, 2000, 3:02 p.m.: 24 IR 293)

SECTION 28. 327 IAC 5-17-12 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-17-12 "National pretreatment standard" defined

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 12. "National pretreatment standard" means any regulation that applies to industrial users and contains pollutant discharge limits promulgated by ~~the~~ **U.S.** EPA in accordance with Section 307(b) and 307(c) of the federal Clean Water Act (33 U.S.C. 1317(b)* and 33 U.S.C. 1317(c))*.

~~*33 U.S.C. 1317(b) and 33 U.S.C. 1317(c) are incorporated by reference.~~ ***These documents are incorporated by reference.** Copies of these publications may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 5-17-12; filed Oct 10, 2000, 3:02 p.m.: 24 IR 294; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936)

SECTION 29. 327 IAC 5-17-21 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-17-21 "Pretreatment standards" defined

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 21. "Pretreatment standards" means:
(1) state pretreatment standards as established in 327 IAC 5-18-8;
(2) pretreatment standards for prohibited discharges, as established in 327 IAC 5-18-2; and
(3) national categorical pretreatment standards incorporated by reference in ~~327 IAC 5-18-10~~. **327 IAC 5-2-1.5.**

(Water Pollution Control Division; 327 IAC 5-17-21; filed Oct 10, 2000, 3:02 p.m.: 24 IR 296)

SECTION 30. 327 IAC 5-17-23 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-17-23 "Significant industrial user" or "SIU" defined

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 23. (a) Except as provided in subsection (b), "significant industrial user" or "SIU" means the following:
(1) Industrial users subject to categorical pretreatment standards under ~~327 IAC 5-18-10~~. **327 IAC 5-2-1.5.**
(2) An industrial user that:
(A) discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater (excluding sanitary, noncontact cooling and boiler blowdown wastewater) to the POTW;
(B) contributes a process waste stream that makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or
(C) is designated as a significant industrial user by the control authority on the basis that the industrial user has a reasonable potential to:
(i) adversely affect the POTW's operation; or
(ii) violate a:
(AA) pretreatment standard; or
(BB) requirement of 327 IAC 5-19-3.
(3) The control authority may determine that an industrial user subject to categorical pretreatment standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N is a nonsignificant categorical industrial user rather than a significant industrial user if the industrial user never discharges more than one hundred (100) gallons per day (gpd) of total categorical wastewater, excluding sanitary, noncontact cooling and boiler blowdown wastewater, unless specifically included in the pretreatment standard and the following conditions are met:
(A) The industrial user, prior to the control authority's finding, has consistently complied with all applicable categorical pretreatment standards and requirements.
(B) The industrial user annually submits the certification statement required in 40 CFR 403.12(q) together

with any additional information necessary to support the certification statement.
(C) The industrial user never discharges any untreated concentrated wastewater.

(b) A control authority may:
(1) on its own initiative; or
(2) in response to a petition received from an industrial user or a POTW and in accordance with 327 IAC 5-19-3(6);
determine that an industrial user is not a significant industrial user if it does not meet subsection (a)(2)(C).

(Water Pollution Control Division; 327 IAC 5-17-23; filed Oct 10, 2000, 3:02 p.m.: 24 IR 296; filed Apr 3, 2009, 1:55 p.m.: 20090429-IR-327060156FRA)

SECTION 31. 327 IAC 5-19-6 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-19-6 Revision of an existing approved POTW pretreatment program

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 6. The criteria and procedures in 40 CFR 403.18* ~~shall~~ govern the revisions to an existing approved POTW pretreatment program.

~~*40 CFR 403.18~~ ***This document** is incorporated by reference. Copies ~~of this publication~~ may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 5-19-6; filed Oct 10, 2000, 3:02 p.m.: 24 IR 308; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936)

SECTION 32. 327 IAC 5-20-1 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-20-1 Prerequisites for revision of categorical pretreatment standards by a POTW

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 1. (a) Any POTW receiving wastewater from an industrial user that is required to meet a categorical pretreatment standard may revise the discharge limits specified by the standard for any specific pollutant or pollutants ~~so long as~~ **if** the POTW has:
(1) applied for and received authorization from the commissioner to revise the discharge limits for a specific pollutant in accordance with this rule and 327 IAC 5-19-5; and
(2) a POTW pretreatment program approved under 327 IAC 5-19.

(b) The revised discharge limit for a specific pollutant must be:
(1) based upon the POTW's capability to consistently remove that pollutant, as demonstrated in accordance with section 2(b) of this rule; and
(2) calculated as provided in section 2(b)(4) of this rule.
A discharge limit revision for a toxic pollutant, that is listed pursuant to Section 307(a) of the Clean Water Act (33 U.S.C. 1317(a)), must be based on the POTW's ability to remove that toxic pollutant and not the ability to remove indicator or surrogate pollutants.

(c) A POTW with a combined sewer overflow or systems that overflow untreated wastewater into a receiving water at least once annually shall not be able to claim consistent removal of a pollutant unless achieving compliance with one (1) of the following:
(1) The industrial user provides containment, reduction, or otherwise ceases all discharges from the regulated processes of a pollutant for which a removal allowance is requested during all circumstances in which ~~a~~ **an** overflow event can reasonably be expected to occur. Discharges must cease or be reduced, or pretreatment

must be increased to the extent necessary, to compensate for the removal not being provided by the POTW. Allowances under this rule will not be granted unless the POTW submits to the commissioner evidence of the following:

(A) All industrial users to which the POTW proposes to apply this rule have demonstrated the ability to contain, reduce, or otherwise cease, during circumstances in which an overflow event can reasonably be expected to occur, all discharges from the regulated processes that contain pollutants for which a removal allowance is requested.

(B) The POTW has identified circumstances in which an overflow event can reasonably be expected to occur, and has a notification procedure or other viable plan **in place** to ensure that industrial users will learn of an impending bypass in sufficient time to contain, reduce, or cease its discharge to prevent untreated overflow from occurring. The POTW must also demonstrate that it will monitor and verify the data required in clause (C) to ensure that industrial users are containing, reducing, or ceasing operations during POTW overflows.

(C) All industrial users to which the POTW proposes to apply this rule have demonstrated the ability and commitment to collect and make available upon request by the POTW, commissioner, or **U.S.** EPA regional administrator:

(i) daily flow reports; or

(ii) other data sufficient to demonstrate that all discharges from regulated processes containing the pollutant for which the removal allowance is requested were:

(AA) contained;

(BB) reduced; or

(CC) otherwise terminated;

during all circumstances in which ~~a~~ **an** overflow event was reasonably expected to occur.

(2) The ~~proposed~~ revised discharge limit **proposed** for a specific pollutant is calculated under section 2(b)(4)(B) of this rule to account for the reduction in POTW removal due to overflows, except as follows:

(A) If an industrial user can demonstrate that overflows do not occur in the POTW's system between the industrial user's discharge and the treatment plant, the POTW may calculate revised discharge limits for the industrial user under section 2(b)(4)(A) of this rule.

(B) After April 19, 1994, consistent removal may be claimed only if efforts to correct the conditions resulting in untreated discharges by a POTW are underway in accordance with the policy and procedures set forth in the EPA Combined Sewer Overflow (CSO) Control Policy (FRL-4732-7)*, published in the Federal Register on April 19, 1994. Revision to discharge limits in categorical pretreatment standards may not be made if a POTW has not committed to efforts to minimize pollution from combined sewer overflows. At a minimum, a POTW must have completed an analysis of combined sewer overflow alternatives in accordance with the requirements of the CSO Control Policy and be making a good faith effort to implement the plan.

(d) A discharge limit revision ~~shall~~ **must** not cause or contribute to a violation of the following:

(1) Applicable water quality standards in the state waters receiving the POTW's effluent.

(2) The POTW's ability to comply with its NPDES permit limitations and conditions.

(3) Any sludge requirements that apply to the sludge management method chosen by the POTW.

Alternatively, the POTW can demonstrate to the commissioner that even though it is not presently in compliance with applicable sludge requirements, it will be in compliance when the industrial user to whom the removal credit would apply is required to meet its categorical pretreatment standard as modified by the removal credit. If granting removal credits forces a POTW to incur greater sludge management costs than would be incurred in the absence of granting removal costs, the additional sludge management costs will not be eligible for **U.S.** EPA grant assistance.

(e) If a POTW has received a construction grant under Section 201(g) of the Clean Water Act (33 U.S.C. 1281(g)) from funds authorized for any fiscal year beginning after September 30, 1978, the POTW shall have completed the analysis required by Section 201(g)(5) of the Clean Water Act (33 U.S.C. 1281(g)(5))*, and demonstrated that the revised discharge limits will not preclude the use of innovative or alternative technology otherwise available to the POTW.

(f) An industrial user that wishes to receive a removal allowance ~~shall:~~ **must:**

(1) submit to the POTW the information required in 40 CFR 403.12(b)*, including the specification of what, **if any,** additional treatment or process facilities ~~if any,~~ will be needed to comply with applicable categorical pretreatment standards as approved for revision under this rule;

(2) enter into a compliance schedule agreement with the POTW to install the needed facilities within the time period provided by the applicable categorical standards; and

(3) have the POTW submit to the commissioner, within sixty (60) days of the effective date of revision of

discharge limits for a particular industrial user, the name and address of the industrial user and the specific discharge limits that were revised.

~~*The Combined Sewer Overflow (CSO) Control Policy (FRL 4732-7) is incorporated by reference. Copies of this publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

~~**Section 201(g)(5) of the Clean Water Act (33 U.S.C. 1281(g)(5)) is incorporated by reference. Copies of this publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

~~***40 CFR 403.12(b) is~~ ***These documents are** incorporated by reference. Copies ~~of this publication~~ may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 5-20-1; filed Oct 10, 2000, 3:02 p.m.: 24 IR 309; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1936)

SECTION 33. 327 IAC 5-20-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-20-2 Application for authorization to revise categorical standards

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 2. (a) An application to revise discharge limits for specific pollutants for an industrial user that is, or in the future may be, subject to categorical pretreatment standards must be submitted to the commissioner by a POTW pursuant to this section. The initial application must be submitted after or concurrently with the POTW's request for approval of its POTW pretreatment program. Subsequent applications, if needed, may be submitted by a POTW no more than once every six (6) months upon the occurrence of one (1) or more of the following:

(1) Promulgation of a categorical pretreatment standard since the previous application.

(2) An industrial user with new or modified facilities or production changes results in the discharge of a pollutant to the POTW that was not previously discharged and is subject to a categorical standard.

(3) Any significant increase in removal efficiency attributable to specific identifiable circumstances or corrective measures, such as:

(A) improvements in operation and maintenance practices;

(B) new treatment or treatment capacity; or

(C) a significant change in the influent to the POTW treatment plant.

(b) An application for authorization to revise discharge limits must include the following information:

(1) A list of pollutants proposed for discharge limit revisions.

(2) Influent and effluent operational data demonstrating consistent removal or other information, as permitted by the commissioner, that demonstrates consistent removal of the pollutants for which a removal allowance is proposed. These data must meet the following requirements:

(A) The data must be representative of yearly and seasonal conditions to which the POTW is subjected for each pollutant proposed for a discharge limit revision.

(B) The data must be representative of the quality and quantity of normal effluent and influent flow of the system if ~~such~~ **the** data can be obtained. If ~~such~~ **the** data are unobtainable, alternate data or information may be presented for approval to demonstrate consistent removal.

(C) The influent and effluent operational data must be obtained through a minimum of twelve (12) composite samples taken at approximately equal intervals throughout one (1) calendar year and meeting the following requirements:

(i) Each composite sample must consist of discrete, flow-proportional samples taken at equal time intervals not to exceed two (2) hours.

(ii) The sampling period must be a minimum of twenty-four (24) hours and each effluent sample must be

taken approximately one (1) detention time later than the corresponding influent sample except that, if the commissioner determines that ~~such~~ a sampling schedule will not be representative of the actual operation of the POTW treatment plant, an alternative sampling schedule will be required. The detention time ~~shall~~ **must** be determined from the flow at the time sampling begins.

(iii) If a particular pollutant is measurable in the influent but not in the effluent, the effluent level may be assumed to be the limit of quantitation, and those data may be used by the POTW in its discretion subject to approval by the commissioner.

(iv) If the pollutant is not measurable in the influent, the data must not be used.

(v) If there are less than eight (8) samples with influent concentrations equal to or above the limit of quantitation, the commissioner may approve alternate means, such as a mass balance, for demonstrating consistent removal. The samples must be evenly distributed over the days of the week so as to include nonworkdays as well as workdays. If the commissioner determines that this schedule will not be most representative of the actual operation of the POTW, an alternative sampling schedule will be approved.

(vi) In addition, upon the ~~commissioners~~ **commissioner's** approval, a POTW may utilize an historical data base amassed prior to the effective data of this rule, provided that the data meets the requirements of this subdivision. In order for the historical data base to be approved, it must present a statistically valid description of daily, weekly, and seasonal sewage treatment plant loadings and performance for at least one (1) year.

(D) Where composite sampling is not an appropriate sampling technique, a grab sample ~~shall~~ **must** be taken to obtain influent and effluent operational data and ~~shall~~ **must** meet the following requirements:

(i) A grab sample ~~shall be~~ **is** required, for example, ~~where~~ **when** the parameters being evaluated are those that may not be held for any extended period because of biological, chemical, or physical interactions that take place after sample collection, ~~and affect~~ **therefore affecting** the results.

(ii) A grab sample is an individual sample **and must be** collected over a period of time not exceeding fifteen (15) minutes.

(iii) Collection of influent grab samples ~~should~~ **must** precede collection of effluent samples by approximately one (1) detention period.

(E) The sampling and analysis required by clause (C) and this clause must be performed in accordance with the following:

(i) Techniques prescribed in one (1) of the following:

(AA) 40 CFR 136* and its amendments.

(BB) Applicable categorical standards.

(ii) Applicable sampling and analytical procedures approved by **U.S.** EPA if one (1) of the following situations exists to make the techniques listed in item (i) inapplicable:

(AA) There is no sampling or analytical technique for the pollutant in question.

(BB) The administrator determines that the 40 CFR 136 sampling and analytical techniques are inappropriate for the pollutant in question.

(F) Consistent removal for a specific pollutant ~~shall~~ **must** be determined as follows:

(i) For each sample, the difference between the pollutant concentrations in the influent and effluent must be calculated and expressed as a percentage of the influent concentration.

(ii) Removal for the pollutant ~~shall~~ **must** be calculated as the average of the lowest fifty percent (50%) of the individual sample removal results. If the number of samples with quantifiable results is between eight (8) and twelve (12), the removal ~~shall~~ **must** be calculated as the average of the lowest six (6) sample results.

(iii) All sample data obtained for the measured pollutant according to clause (C) must be reported and used in calculating consistent removal.

(iv) If an alternate means is approved by the commissioner under clause (C) for demonstrating consistent removal, then removal ~~shall~~ **must** be calculated as specifically provided by the commissioner.

(3) A list of the industrial subcategories for which discharge limits in categorical pretreatment standards would be revised, including the number of industrial users in each subcategory and an identification of which of the pollutants on the list prepared under subdivision (1) are discharged by each subcategory.

(4) The ~~proposed~~ revised discharge limits **proposed** for each of the subcategories of industrial users identified in subdivision (3) calculated in the following manner:

(A) The ~~proposed~~ revised discharge limit **proposed** for the specified pollutant must be calculated using the following formula:

$$Y = \frac{X}{1 - r}$$

Where: X = Pollutant discharge limit specified in the applicable categorical pretreatment standard (expressed in milligrams per liter).

r = POTW's consistent removal rate for that pollutant as established under this rule (percentage

expressed as a decimal).

Y = Revised discharge limit for the specified pollutant (expressed in milligrams per liter).

(B) In the case of a POTW that either has combined sewers or has bypassed untreated wastewater into the receiving water at least once annually, and that claims consistent removal of a pollutant under section 1(c)(1) of this rule, the ~~proposed~~ revised discharge limits **proposed** for the specific pollutant must be calculated using the following formula:

$$r_c = r_m \frac{8760 - Z}{8760}$$

Where: r_m = POTW's consistent removal rate for a specific pollutant.

r_c = Removal corrected by the overflow factor.

Z = Hours per year that overflow occurred between the industrial user and the POTW treatment plant, the hours either to be shown in the POTW's current NPDES permit application or the hours, as demonstrated by verifiable techniques, that a particular industrial user's discharge overflows between the industrial user and the POTW treatment plant.

(5) Data showing the concentrations and amounts **of the pollutants** in a POTW's sludge ~~of the pollutants~~ **that are** proposed for discharge limit revisions, and for which sludge disposal or use criteria applicable to the POTW's current method of sludge use or disposal have been published by **U.S.** EPA or the department ~~This data~~ must meet the following requirements:

(A) The data must be obtained through a composite sample taken during each of the sampling periods selected to measure consistent removal in accordance with the requirements of subdivision (2)(C). Each composite sample must contain a minimum of twelve (12) discrete samples taken at equal time intervals over a twenty-four (24) hour period. Where a composite sample is not an appropriate sampling technique, grab samples must be taken.

(B) Sampling and analysis of the samples referred to in clause (A) must be performed in accordance with the sampling and analytical techniques described in subdivision (2)(E).

(6) A specific description of the following:

(A) The POTW's current method of use or disposal of its sludge.

(B) Data certifying that the current sludge use or disposal methods comply and will continue to comply with section 1(d) of this rule.

(7) A certification that the POTW has an approved POTW pretreatment program or qualifies for the exception to this requirement found at section 1(c) of this rule.

(8) A certification that the granting of removal credits will not cause a violation of the POTW's NPDES permit limits or conditions.

(c) The application to revise categorical standards must contain the following:

(1) Signature of one (1) of the following:

(A) A principal executive officer.

(B) A ranking elected official.

(C) A duly authorized employee of the POTW, if the employee is responsible for overall operation of the POTW.

(2) A certification by the signatory or an independent consulting engineer, if retained by the POTW to prepare the application, stating, "I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that this information was obtained in accordance with the requirements of 327 IAC 5-20-2(b). Moreover, based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate, and complete.".

(d) An application to revise categorical standards, upon its submittal by a POTW, will be reviewed, approved, or denied by the commissioner in accordance with the procedures of 327 IAC 5-19-5. Approval of an application ~~shall empower~~ **only empowers** the POTW to revise ~~only~~ the specific discharge limits proposed under subsection (b)(4).

(e) If the state has an approved pretreatment program, the regional administrator may agree in the Memorandum of Agreement under 40 CFR 123.24(d)* to waive the right to review and object to submissions for authority to grant removal credits. ~~Such an~~ **The** agreement ~~shall~~ **does** not restrict the regional administrator's right to comment upon or object to permits issued to POTW's except to the extent 40 CFR 123.24(d) allows such **a** restriction.

(f) Nothing in this rule precludes an industrial user or other interested party from assisting the POTW in preparing and presenting the information necessary to apply for authorization.

~~*40 CFR 123.24(d) is~~ ***These documents are** incorporated by reference. Copies ~~of this publication~~ may be obtained from the ~~Superintendent of Documents,~~ Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 5-20-2; filed Oct 10, 2000, 3:02 p.m.: 24 IR 310; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937)

SECTION 34. 327 IAC 5-21-6 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-21-6 Conditions applicable to all permits

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 6. (a) The following conditions apply to all IWP permits and must be expressly incorporated into the permit or incorporated by reference **into the permit:**

(1) Permit conditions specified in 327 IAC 5-2-8(1) through 327 IAC 5-2-8(3), 327 IAC 5-2-8(7) through 327 IAC 5-2-8(9), and 327 IAC 5-2-8(13).
(2) The upset provision according to 327 IAC 5-16-6.
(3) The bypass provision according to 327 IAC 5-16-7.
(4) The enforcement provision according to 327 IAC 5-16-4.

(b) An IWP permit may be modified in whole or in part, revoked and reissued, or terminated during its term for cause in accordance with the pertinent provisions of 327 IAC 5-2-16. An IWP permittee must:

(1) report to the commissioner plans for, or information about, any activity that has occurred, or will occur, that would constitute cause for modification or revocation and reissuance under this section;
(2) comply with the existing IWP permit until it is modified or reissued; and
(3) abide by the commissioner's decision:
  (A) to modify or revoke and reissue the permit; and
  (B) require submission of a new application as required by section 3 of this rule.

(c) If the permittee does not or will not be able to comply for any reason with any discharge limitation specified in the IWP permit, the permittee shall provide the commissioner with the following information within twenty-four (24) hours of an event of permit noncompliance:

(1) A description of the discharge and cause of noncompliance.
(2) The period of noncompliance, including exact dates and times of the noncomplying event and the anticipated time when the discharge will return to compliance.
(3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

(d) The permittee shall take all reasonable steps to minimize any adverse impact to the POTW, or to waters of the state, resulting from noncompliance with the IWP permit.

(Water Pollution Control Division; 327 IAC 5-21-6; filed Oct 10, 2000, 3:02 p.m.: 24 IR 315)

SECTION 35. 327 IAC 5-21-7 IS AMENDED TO READ AS FOLLOWS:

327 IAC 5-21-7 Applicable discharge limitations and related conditions

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-4

Sec. 7. Permits issued under this rule must ensure compliance with the following as applicable:

(1) The most stringent pretreatment standards and requirements specified in 327 IAC 5-18 that are applicable to a particular discharge. For purposes of this section, a pretreatment standard or requirement is applicable if it applies by its terms to the discharge and becomes effective prior to final issuance of an IWP permit.
(2) With respect to an IWP permit to be issued to an industrial user within one (1) of the industrial categories or subcategories listed in ~~327 IAC 5-18-10~~, **327 IAC 5-2-1.5,** if an applicable categorical pretreatment standard has not yet been promulgated under Section 307(b) or 307(c) of the Clean Water Act (33 U.S.C. 1317(b) or 33 U.S.C. 1317(c)), the permit shall include a condition stating that if such a categorical pretreatment standard is subsequently promulgated that is more stringent than any discharge limit in the permit or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked and reissued in accordance with such categorical pretreatment standard.
(3) The alternative discharge limitations or standards where warranted by fundamentally different factors under 327 IAC 5-18-5(a).
(4) The best management practices to control or abate the discharge of pollutants where:
(A) numeric effluent limitations are infeasible; or
(B) the practices are reasonably necessary to achieve discharge limitations and standards or to carry out the purposes of the Clean Water Act (33 U.S.C. 1251).
(5) No permit shall be issued for the discharge of any radiological, chemical, or biological warfare agent or high level radioactive waste.
(6) If the promulgated pretreatment standards, listed in ~~327 IAC 5-18-10~~, **327 IAC 5-2-1.5,** are based on production or equivalent concentration limitations, then equivalent mass limitations may be applied in place of the standard where appropriate in the permit. If equivalent limitations are applied, the permit limitations shall be calculated in accordance with 327 IAC 5-18-4(d).
(7) Discharges that are not continuous shall be particularly described and limited, considering the following factors, as appropriate:
(A) Frequency.
(B) Total mass.
(C) Maximum rate of discharge of pollutants during the discharge.
(D) Prohibition or limitation of specified pollutants by mass, concentration, or other appropriate measure.
(8) If permit effluent limitations or standards imposed at the point of discharge are impractical or infeasible, then effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams prior to mixing with other waste streams or cooling water streams with the following requirements applied:
(A) The monitoring required by section 9 of this rule shall also be applied to the internal waste streams.
(B) The effluent limitations on internal waste streams shall be developed in accordance with the provisions of 327 IAC 5-2-11(h).

(Water Pollution Control Division; 327 IAC 5-21-7; filed Oct 10, 2000, 3:02 p.m.: 24 IR 316)

SECTION 36. 327 IAC 8-3.1-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-3.1-2 Permitting authority and responsibilities

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-3-12; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) The plans for a water main extension are not required to be submitted to any state agency for a permit, permission, or review, unless required by the federal law, if the following are met:
(1) A person submits plans to a unit concerning the design or construction of a public water main.
(2) A professional engineer prepared the plans.
(3) The unit provided a review of the plans by a qualified engineer and subsequently approved the plans.
(4) All other requirements specified in this rule and all other rules adopted by the ~~water pollution control~~ board are met.

(b) The proposed construction of a water main must be in accordance with the following:
(1) The Safe Drinking Water Act, 42 U.S.C. 300f-300j-26*. ~~as amended*.~~
(2) The Clean Water Act, 33 U.S.C. 1251-1387*. ~~as amended*.~~

(c) The other requirements specified in rules that have been adopted by the ~~water pollution control~~ board and must be adhered to in the permitting of a public water main include the following:
(1) 327 IAC 8-1: Public Water Supply Direct Additive and Indirect Additive Standards.
(2) 327 IAC 8-2: Drinking Water Standards.

(3) 327 IAC 8-3.2: Technical Standards for Water Mains.
(4) 327 IAC 8-3.3: Public Water System Quantity Requirement Standards.
(5) 327 IAC 8-3.3-4: Additional public water system quantity requirement standards for school buildings and related facilities.
(6) 327 IAC 8-3.3-5: Additional public water system quantity requirement standards for mobile home parks.
(7) 327 IAC 8-3.3-6: Additional public water system quantity requirement standards for agricultural labor camps.
(8) 327 IAC 8-10: Cross Connections; Control; Operation.

(d) Units shall notify the commissioner of all public water main construction permits that the unit has issued by submitting to the department, on the effective date of the permit, a copy of each issued permit. Each submission ~~shall~~ **must** contain the following information for each issued permit:
(1) The identification number that has been issued by the local unit.
(2) The effective date of the permit.
(3) The county where the construction project is to be located.
(4) The location of the construction project in terms of the following:
(A) The nearest public intersection.
(B) Quarter section, section, township, and range of the approximate center of the construction project.
(C) If the information requested by clause (B) is not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.
(5) The maximum number of proposed service connections to the water main.
(6) A description and numerical count of the type or types of facilities to be located at each proposed service connection whether:
(A) residential;
(B) commercial; or
(C) industrial.
(7) A project layout map on an eight and one-half (8.5) inch by eleven (11) inch sheet of paper.

(e) The commissioner may approve alternatives to the notification procedure described in subsection (d) if requested. The alternative notification procedure must provide equivalent information to that required under subsection (d) to be considered for approval.

~~*The Safe Drinking Water Act as amended on August 6, 1996, is incorporated by reference and may be found at 42 U.S.C. 300f to 42 U.S.C. 300j-26 and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.~~

~~**The Clean Water Act in effect on January 1, 1989, and amended on December 16, 1996, is incorporated by reference and may be found at 33 U.S.C. 1251 to 33 U.S.C. 1387 and is available from the Superintendent of Documents,~~ ***Copies of these publications may be obtained from the** Government ~~Printing~~ **Publishing** Office, ~~Washington, D.C. 20402~~ **www.gpo.gov,** or ~~from~~ **are available for review at** the Indiana Department of Environmental Management, Office of ~~Water Quality,~~ **Legal Counsel,** Indiana Government Center North, 100 North Senate Avenue, ~~Room N1255,~~ **Thirteenth Floor,** Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 8-3.1-2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2499; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2951; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)

SECTION 37. 327 IAC 17-1-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 17-1-3 Definitions

Authority: IC 13-18-3-1; IC 13-18-22-2; IC 13-18-22-7
Affected: IC 13-18-3; IC 13-18-4; IC 13-18-22

Sec. 3. The following definitions apply throughout this article:
(1) "Class I wetland" means an isolated wetland described by one (1) or both of the following:
(A) At least fifty percent (50%) of the wetland has been disturbed or affected by human activity or

development by one (1) or more of the following:
(i) Removal or replacement of the natural vegetation.
(ii) Modification of the natural hydrology.
(B) The wetland supports only minimal wildlife or aquatic habitat or hydrologic function because the wetland does not provide critical habitat for threatened or endangered species listed in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) and the wetland is characterized by at least one (1) of the following:
(i) The wetland is typified by low species diversity.
(ii) The wetland contains greater than fifty percent (50%) areal coverage of nonnative invasive species of vegetation.
(iii) The wetland does not support significant wildlife or aquatic habitat.
(iv) The wetland does not possess significant hydrologic function.

(2) "Class II wetland" means either of the following:
(A) An isolated wetland that is not a Class I or Class III wetland.
(B) A type of wetland listed in subdivision (3)(B) that would meet the definition of Class I wetland if the wetland were not a rare or ecologically important type.

(3) "Class III wetland" means an isolated wetland:
(A) that:
(i) is located in a setting undisturbed or minimally disturbed by human activity or development; and
(ii) supports more than minimal wildlife or aquatic habitat or hydrologic function; or
(B) unless classified as a Class II wetland under subdivision (2)(B), that is of one (1) of the following rare and ecologically important types:
(i) Acid bog.
(ii) Acid seep.
(iii) Circumneutral bog.
(iv) Circumneutral seep.
(v) Cypress swamp.
(vi) Dune and swale.
(vii) Fen.
(viii) Forested fen.
(ix) Forested swamp.
(x) Marl beach.
(xi) Muck flat.
(xii) Panne.
(xiii) Sand flat.
(xiv) Sedge meadow.
(xv) Shrub swamp.
(xvi) Sinkhole pond.
(xvii) Sinkhole swamp.
(xviii) Wet floodplain forest.
(xix) Wet prairie.
(xx) Wet sand prairie.

(4) "Clean Water Act" refers to:
(A) 33 U.S.C. 1251 et seq.; and
(B) regulations adopted under 33 U.S.C. 1251 et seq.

(5) "Compensatory mitigation" means the
~~(A)~~ restoration or
~~(B)~~ creation
of wetlands to offset or compensate for a loss of wetlands resulting from an authorized wetland activity. Wetlands enlargement, enhancement, and preservation may be considered compensatory mitigation on a case-by-case basis, particularly for Class III wetlands.

(6) "Dredged material" means material that is dredged or excavated from an isolated wetland.

(7) "Exempt isolated wetland" means the following:
(A) An isolated wetland that is a voluntarily created wetland unless:
(i) the wetland is:
(AA) approved by the department for compensatory mitigation purposes in accordance with a permit issued under Section 404 of the Clean Water Act or IC 13-18-22; or
(BB) reclassified as an SRW under IC 13-18-22-6(c); or
(ii) the owner of the wetland declares, by a written instrument:
(AA) recorded in the office of the recorder of the county or counties ~~in which~~ **where** the wetland is located; and

(BB) filed with the department;

that the wetland is to be considered in all respects to be an SRW.

(B) An isolated wetland that exists as an incidental feature in or on any of the following:

(i) A residential lawn.

(ii) A lawn or landscaped area of a commercial or governmental complex.

(iii) Agricultural land.

(iv) A roadside ditch.

(v) An irrigation ditch.

(vi) A manmade drainage control structure.

(C) An isolated wetland that is a fringe wetland associated with a private pond.

(D) An isolated wetland that is, or is associated with, a manmade body of surface water of any size created by:

(i) excavating;

(ii) diking; or

(iii) excavating and diking;

dry land to collect and retain water for or incidental to agricultural, commercial, industrial, or aesthetic purposes.

(E) An isolated wetland that is a Class I wetland with an area, as delineated, of one-half (1/2) acre or less.

(F) An isolated wetland that is a Class II wetland with an area, as delineated, of one-fourth (1/4) acre or less.

(G) An isolated wetland that is located on land:

(i) subject to regulation under the United States Department of Agriculture wetland conservation rules, also known as Swampbuster (16 U.S.C. 3801-3862), because of voluntary enrollment in a federal farm program; and

(ii) used for agricultural or associated purposes allowed under the rules referred to in this clause.

(H) For purposes of clause (B), an isolated wetland exists as an incidental feature:

(i) if:

(AA) the owner or operator of the property or facility described in clause (B) does not intend the isolated wetland to be a wetland;

(BB) the isolated wetland is not essential to the function or use of the property or facility; and

(CC) the isolated wetland arises spontaneously as a result of damp soil conditions incidental to the function or use of the property or facility; and

(ii) if the isolated wetland satisfies any other factors or criteria established in rules that are:

(AA) adopted by the ~~water pollution control~~ board; and

(BB) not inconsistent with the factors and criteria described in this clause.

(I) The total acreage of Class I wetlands on a tract to which the exemption described in clause (E) may apply is limited to the larger of the following:

(i) The acreage of the largest individual isolated wetland on the tract that qualifies for the exemption described in clause (E).

(ii) Fifty percent (50%) of the cumulative acreage of all individual isolated wetlands on the tract that would qualify for the exemption described in clause (E) but for the limitation of this subdivision.

(J) The total acreage of Class II wetlands on a tract to which the exemption described in clause (F) may apply is limited to the larger of the following:

(i) The acreage of the largest individual isolated wetland on the tract that qualifies for the exemption described in clause (F).

(ii) Thirty-three and one-third percent (33 1/3%) of the cumulative acreage of all individual isolated wetlands on the tract that would qualify for the exemption described in clause (F) but for the limitation of this subdivision.

(K) An isolated wetland described in clause (E) or (F) does not include an isolated wetland on a tract that contains more than one (1) of the same class of wetland until the owner of the tract notifies the department that the owner has selected the isolated wetland to be an exempt isolated wetland under clause (E) or (F) consistent with the applicable limitations described in clauses (I) and (J).

(8) "Isolated wetland" means a wetland that is not subject to regulation under Section 404(a) of the Clean Water Act.

(9) "Notice of intent" means a notice submitted by a person proposing the wetland activity as a prerequisite to applicability of a general permit under either 327 IAC 17-2 or 327 IAC 17-3. This notice must contain the following information:

(A) An identification of the wetlands to be affected by the wetland activity including the following:

(i) The location of the tract and location of the wetlands on the tract.

(ii) A delineation of all wetlands on the tract.

(iii) A classification of all SRWs on the tract.

(iv) A description of the proposed wetland activities and project at the site.

(v) For the purpose of making the determinations at ~~subdivisions~~ **subdivision** (7)(A) and (7)(K), section 4 of this rule, IC 13-18-22-2(c), IC 13-18-22-10, and IC 13-18-22-11, the person proposing the activity shall disclose dates for the following:

(AA) Actions that disturb or affect isolated wetlands under subdivision (1)(A) that occurred after January 1, 2004.

(BB) Wetland activities exempted by subdivision (7)(E) or (7)(F) that occurred after January 1, 2004.

(CC) Voluntary creations of isolated wetlands under subdivisions (7)(A) and (12).

(DD) Restoration of isolated wetlands under IC 13-18-22-2(c).

(EE) Filling, draining, or elimination by other means **of** isolated wetlands not removed from the department's authority by IC 13-18-22-10.

(FF) Wetland activities that occurred on land previously exempted by subdivision (7)(G) if:

(aa) the land is no longer subject to; and

(bb) the wetland activities were not in compliance with;

the United States Department of Agriculture wetland conservation rules.

(B) A compensatory mitigation plan to reasonably offset the loss of wetlands allowed, unless an exception to mitigation has been granted by the department under section 6 of this rule.

(C) A statement signed by the applicant stating, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.".

(D) Correspondence from the United States Army Corps of Engineers (USACOE) that states that the wetland is not subject to regulation under Section 404(a) of the Clean Water Act.

(10) "State regulated wetland" or "SRW" means an isolated wetland located in Indiana that is not an exempt isolated wetland.

(11) "Tract" means any area of land that is:

(A) under common ownership; and

(B) contained within a continuous border.

(12) "Voluntarily created wetland", for purposes of this article, means an isolated wetland that:

(A) was restored or created in the absence of a governmental order, directive, or regulatory requirement concerning the restoration or creation of the wetland; and

(B) has not been applied for or used as compensatory mitigation or another regulatory purpose that would have the effect of subjecting the wetland to regulation as waters by:

(i) the department; or

(ii) another governmental entity.

(13) "Waters" means the accumulations of water, surface and underground, natural and artificial, public and private, or a part of the accumulations of water that are wholly or partially within, flow through, or border upon Indiana. The term does not include any of the following:

(A) An exempt isolated wetland.

(B) A private pond.

(C) An off-stream pond, reservoir, wetland, or other facility built for reduction or control of pollution or cooling of water before discharge.

The term includes all waters of the United States, as defined in Section 502(7) of the federal Clean Water Act (33 U.S.C. 1362(7)), that are located in Indiana.

(14) "Waters of the United States" means waters described by 33 CFR 328.3(a)(3).

(15) "Wetland activity" means the discharge of

~~(A)~~ dredged or

~~(B)~~ fill

material into an isolated wetland.

(16) "Wetlands" means areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. The term generally includes the following:

(A) Swamps.

(B) Marshes.

(C) Bogs.

(D) Similar areas.

(17) "Wetlands delineation" or "delineation", for purposes of this rule, means a technical assessment of:

(A) whether a wetland exists on an area of land; and

(B) if so, the type and quality of the wetland based on the presence or absence of wetlands characteristics, as determined consistently with the Wetlands Delineation Manual, Technical Report Y-87-1 of the United

States Army Corps of Engineers.

(Water Pollution Control Division; 327 IAC 17-1-3; filed May 25, 2005, 10:45 a.m.: 28 IR 2969; readopted filed Jun 15, 2011, 11:15 a.m.: 20110713-IR-327110193BFA; readopted filed Jun 29, 2017, 9:34 a.m.: 20170726-IR-327170225BFA)

SECTION 38. 327 IAC 19-2-7 IS AMENDED TO READ AS FOLLOWS:

327 IAC 19-2-7 "Confined feeding operation" or "CFO" defined

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-18-10-4
Affected: IC 4-21.5; IC 13-11-2-40; IC 13-14; IC 13-15; IC 13-18-10; IC 13-30

Sec. 7. "Confined feeding operation" or "CFO", as defined in IC 13-11-2-40, means any:
(1) confined feeding of at least:
  (A) three hundred (300) cattle;
  (B) six hundred (600) swine or sheep;
  (C) thirty thousand (30,000) fowl; or
  (D) five hundred (500) horses;
(2) AFO electing to be subject to IC 13-18-10; or
(3) AFO that is causing a violation of:
  (A) water pollution control laws;
  (B) any rules of the ~~water pollution control~~ board; or
  (C) IC 13-18-10.
A determination by the department under this subdivision is appealable under IC 4-21.5.

(Water Pollution Control Division; 327 IAC 19-2-7; filed Feb 6, 2012, 2:58 p.m.: 20120307-IR-327090615FRA, eff Jul 1, 2012)

SECTION 39. THE FOLLOWING ARE REPEALED: 327 IAC 1-1-4; 327 IAC 2-1-12; 327 IAC 2-1.5-20; 327 IAC 3-2.1-2; 327 IAC 3-6-2; 327 IAC 5-1.5-1; 327 IAC 12.1-2-3.

Notice of Public Hearing

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